

# MOTOR AGE

## Pathfinder

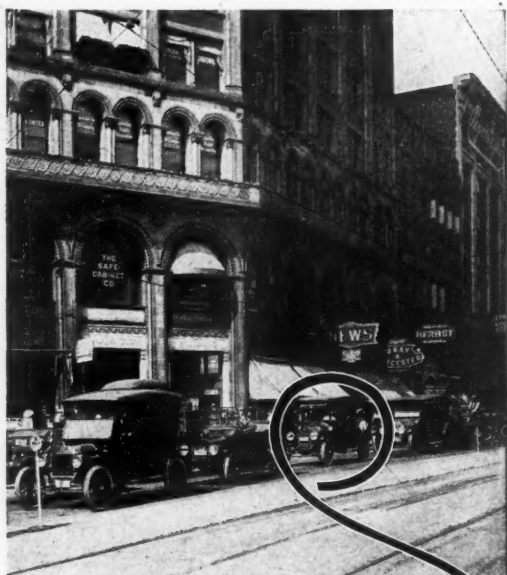
THE stunning appearance of a Pathfinder is a true mark of the quality within. People choose it because it is a superb car; superb in mechanics, in comfort, in looks.

The performance of the Pathfinder chassis is known from coast to coast on account of its work in mapping trans-continental highways.

Motor Car Mfg. Co.  
1130 Division Street  
Indianapolis, Ind.



# It Is a Well Known Fact



that a woman prefers an electric because she knows she can control it, no matter how powerful it may be, by the simple pressing of a button or the movement of a light hand controller.

The manual Gear Shift is an obstacle to the aspiring motorist who dreads the inevitable moment, when in congested traffic or on a steep hill, she is obliged to take her eyes from the road, release her hand from the steering wheel and grope

vainly for a shifting lever, upon the movement of which her very life may depend.

No more of this!

The Vulcan Electric Gear Shift has solved the problem of Gear Shifting by a method as old as the hills; simply an electric magnet operated by means of a push button.

Electricity has again, as in electric lights, electric horn, electric self-starter, eliminated the cumbersome and crude, substituting simplicity and safety.



It eliminates the need for muscular control and effort, making it possible for a woman to enjoy those things which her lack of muscular strength and general aversion to mechanical things have prevented her from using. There is now no reason why a woman should be limited to the use of an electric. The Vulcan Electric Gear Shift places the most powerful gasoline touring car at her command.

The Vulcan Electric Gear Shift has no complicated parts, no delicate mechanism, it is much simpler than the manual gear shift, easier to learn to operate, vastly superior in its method of operation—and it can always be depended upon to give perfect service.

The addition of the Vulcan Electric Gear Shift is the last step in electrifying the gasoline car.

It is the realization of a dream that automobile engineers have had for years; that of placing the gasoline vehicle under the easy and instant control of a veritable novice.

A simply written story of what the Vulcan Electric Gear Shift is, how it operates and why it has sprung into such instant favor, is just off the press.

Beautifully bound and printed, profusely illustrated,—it is a book which every automobile enthusiast should read.

If you are interested, we shall be glad to send you one.

Use the coupon.



Vulcan Electric Gear Shift Dept.

**The Cutler-Hammer Mfg. Co.**  
Milwaukee Wisconsin

## COUPON

Please send me your book, "GEAR SHIFTING BY ELECTRICITY."

Name \_\_\_\_\_

Address \_\_\_\_\_

M 20



# SPARTON



**The  
New  
Price**

**\$5.00**

Powerful and Penetrating.

Hand operated—no batteries—no wiring necessary.

Finished in black enamel with nickel trimmings.

Attaches to the side of the driver's seat without the least trouble.

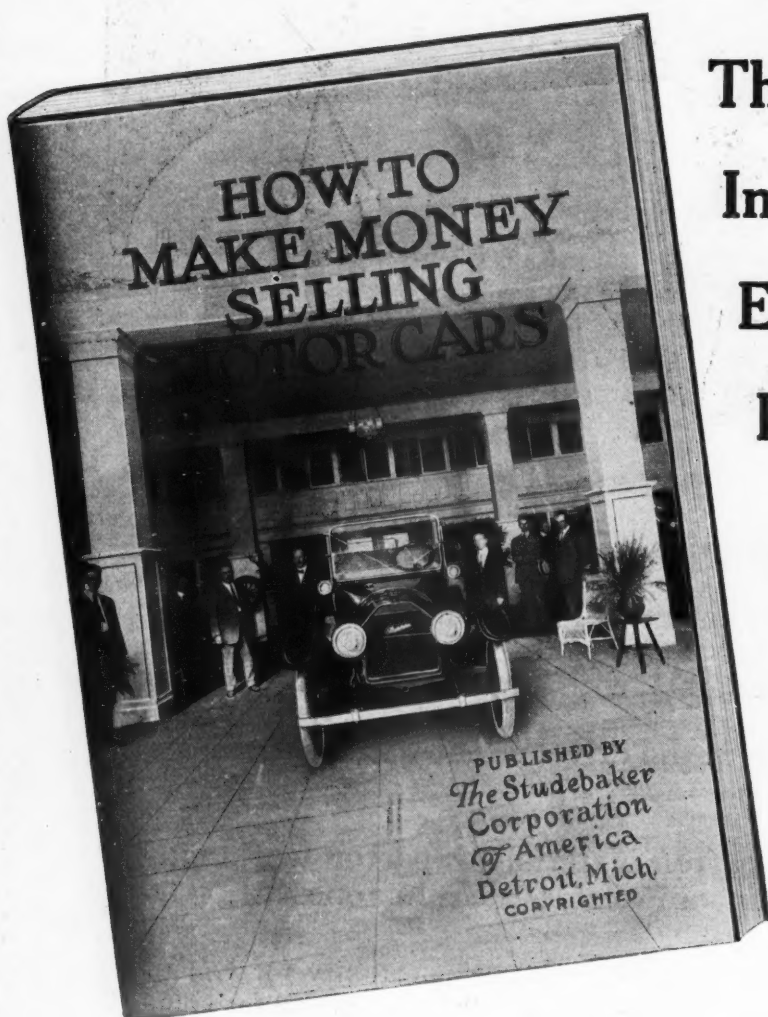
Sparton quality—Sparton materials—Sparton workmanship—and the incomparable Sparton tone.

**DEALERS** Right now there is a golden opportunity for you to share in the huge Sparton Business. Write for complete details.

**The Sparks-Withington Co., Jackson, Mich.**

# Studebaker

## Here Is A Book



That Ought To Be  
In The Hands of  
Every Ambitious  
Dealer

*"How To Make  
Money  
Selling Motor  
Cars"*

Elements of Success in the building of a permanent and prosperous business. Together with some practical suggestions from wide-awake Studebaker Dealers.

*It is an interesting book—And it is yours for the asking*

STUDEBAKER, 1001 Piquette Avenue, DETROIT





# MOTOR AGE



Published by the  
CLASS JOURNAL COMPANY  
910 South Michigan Avenue  
CHICAGO ILLINOIS

## YEARLY SUBSCRIPTION RATES

United States, Mexico and U. S. Possessions.....\$8.00  
Canada and all Foreign Countries..... 5.00

All currency should be sent by registered mail.

Two weeks should be allowed for change of address to become effective, or for receipt of first copy on a new subscription.

In forwarding change of address, please give old and new address.

BEWARE OF SOLICITORS, OFFERING SUBSCRIPTIONS AT CUT RATES.

Volume XXVI

October 8, 1914

No. 15

## Contents

### AS FASHION DECREES..... 5

Motor modes that have run Mars' blockade—Review of styles for fall wear

### DEMOCRATIC CAUCUS AGAINST TAXING CARS AND GAS..... 12

Favorable action taken by law makers in Washington—National Automobile Chamber of Commerce directs attack on war measure—Detroit makers file strenuous protest

### EDITORIAL—AS FOREIGNERS SEE OUR TRUCKS..... 14

### MOTOR POSSE RUNS DOWN MURDERER IN NEBRASKA..... 15

More than 1000 cars and 2500 farmers take part in man hunt

### WITH BRADLEY AND THE MOTOR CAR ON THE FIRING LINE.... 16

Motor Age correspondent, in British uniform, gives first-hand information as to war performances of gasoline-propelled vehicles

### QUAKER JUDGE POINTS OUT MOTOR EVILS..... 20

Hard raps for drivers and pedestrians

### STAR TRIO IN DIRT TRACK CENTURY RACE..... 21

De Palma, Burman and Mulford entered at Galesburg

### FORD'S PROFIT-SHARING SCHEME EXPLAINED..... 22

Advertising men are told how scheme to help employes is working out

### DOLLAR WHEAT AND GOOD ROADS IN KANSAS..... 24

Bumper crops and fine highways arouse motoring enthusiasm

## DEPARTMENTS

Routes and Touring Information	26	The Accessory Corner.....	39
Readers' Clearing House.....	28	From the Four Winds.....	40
Realm of Commercial Car.....	35	Among Makers and Dealers.....	41
Motor Car Repair Shop.....	38	New Agencies Appointed.....	42



Over half  
of motordom  
rides in cars  
upholstered  
with

**SULZBERGERS**  
..STERILIZED..  
**CURLED-HAIR**

Automobile Upholstery  
De Luxe

Write us for  
Reasons Why  
Sampler of hair  
cheerfully sent

**Sulzberger & Sons**  
.. Company ..  
Chicago · Illinois





When ordering your new car, Specify

# DUNLOP

## DETACHABLE WIRE WHEELS

Such as are used as Standard equipment on the best European cars and thereby bring *Your* car up to date  
**LONG THE STANDARD OF EUROPE—NOW THE STANDARD OF AMERICA**

**EASY RIDING**—All shocks caused by bumps in the road, sudden application of brakes or clutch are largely absorbed by the elasticity of 70 interlaced suspension constructed spokes in each Dunlop wheel.

**TIRE SAVING**—Dunlop wheels add at least 50% to the life of a tire because; they are lighter than wooden wheels; they absorb shocks and jars that would injure tire fabric they radiate the tire heat, etc.

**SAFETY**—Many times stronger than wooden wheels. Any accident severe enough to demolish a wooden wheel would only bend a Dunlop wheel.

**QUICK TIRE CHANGE**—Dunlop wheels can be removed and replaced in 30 seconds. No removable nuts. No loose parts. Any lady can change Dunlop wheels. They are interchangeable.

### THE SERRATED LOCK

Patented and used only on Dunlop wheels—is a positive automatic locking device. It is proof against accident and carelessness. Dunlop wheels can't come off accidentally. *Look for this lock.*

**PRICE**—Complete set, consisting of 4 wheels and 4 inner hubs ready to attach to any standard automobile; 1 spare wheel with dust excluder and one spanner wrench.....\$200.00

**Dunlop Wire Wheel Corporation of America**

General Office:—2130 BROADWAY, NEW YORK, N. Y.

Factories:—LONG ISLAND CITY, N. Y.

Distributors for Pacific Coast

AMERICAN EVER READY CO., 755 Folsom Street, San Francisco, Cal.

Write for new illustrated catalogue "L" containing full information.





# MOTOR AGE

*Tete de nigre motor coat of imported zibeline with a high crush velvet collar and a very deep cuff. A strap holds the fullness in over the hips and high under the arms. The coat fastens with tortoise shell buttons. Price \$75*

*Imported English motor coat of heather mixture, made by Rimell Alsop, of London. It is made with large raglan sleeves and a convertible collar. It has a full skirt and a detachable belt that can be worn buttoned around the outside of the coat or worn on the inside. With the exception of the sleeves, this coat is unlined but is warm nevertheless. Price \$55*

\*\*\*

Pierre and Jean, who 2 months ago kissed tear-blinded Babette and grief-silenced Marie good-bye and rushed to the relief of stricken Belgium.

#### Dame Fashion Deserted

Babette and Marie, too, have found new and strange tasks for their nimble fingers. In the spring, when the trees along the Champs Elysees burst forth in bloom and the Bois de Boulogne at night hummed with whispering lovers, they were in the service of la belle dame, Mode, and their needles fashioned charming coats and bonnets for Mademoiselle Motorist. But now they have ceased to work with velour and duvryn, chiffon and velvet. The guardians of France must be clothed and Babette and Marie are knitting socks for Pierre and Jean, a task that would be irksome did not love and patriotism guide the workers' hands.

## As Fashion Dictates Motor Modes That Have Run Mars' Block

By J. C. Burton

**A** LONG the river Aisne, in France, red Fate has marked a firing line where 3,000,000 men, recruited from the pursuits of peace, and fighting with the frenzy and blood-lust of abysmal skull-crushers, are deadlocked in colossal conflict.

Among the green hills of Scotland, Jock's shepherd dog watches the grazing sheep without his master, for Jock is in the trenches at Namur, humming the songs of Lauder, as he loads his carbine, sights through the smoke and fires. Paddy, the weaver, has left his loom to become a shuttle in that great war machine that is weaving new monarchical destinies from the warp of victory and the woof of

defeat. The factory whistle at Dublin no longer calls him to his labor; charge, sounded by a bugler of the Royal Irish Fusiliers, now summons him to a task more grim. 'Arry, the English cutter and designer, has laid aside his shears for a sharper tool, the saber, and in the deserted shop in London there is none to take up his abandoned tailor's square.

#### Minions of Grim Mars

Jock, Paddy and 'Arry, on whom the American depends for distinctive and up-to-the-minute motoring apparel, have gone to the front. They are comrades on the firing line of Pierre and Jean, sober-faced, red-pantalooned, desperately-fighting

In the ominous hour of national peril, Fashion has been deserted by her retinue. Jock, Paddy and 'Arry are fighting and dying in the trenches along the Aisne, while Babette and Marie are playing the role of heroines in man-hungry Paris. With a single blow of his mailed fist, Mars has shattered the glass before which John Bull swaggered and in which La Belle France gazed with supreme satisfaction, and America must be content with the bits of glass that once formed the magic mirror in which the styles for two continents were reflected. Thousands of American motorists, who in the past have demanded the creations of the European designers,



*Motor coat of mahogany wool plush featured by narrow shoulders and a very wide circular flare, thus accentuating the 1914 silhouette. The coat has a roll collar and wide, deep cuffs of otter. The sleeves are at least 12 inches longer than the arms, thus permitting the use of fur cuffs as a muff. Price \$165. The bonnet is a mahogany-colored mushroom shape trimmed with toupe shirred ribbon and draped with a toupe veil. Price \$12.50.*

will discover that this season there is a paucity of coats bearing the "Made in England" and "French Importation" labels.

#### War a Sartorial Calamity

From the viewpoint of the American dealer in motor clothing, the European war is a sartorial calamity which would be complete and crushing were it not for the fact that England is mistress of the seas and foreign shipping consequently is not paralyzed. The majority of the merchants cannot supply the demand for English and French importations and now have emissaries in the wholesale districts of New York and Chicago bombarding the cloak and suit houses of Potash & Perlmutter et al with eleventh-hour rush orders. They are shouting "American coats for American motorists" not from choice, but because of necessity.

Early in the summer, the leading American merchants, following their usual custom, sent their advance guard, the foreign buyers, across the Atlantic to lay siege to the strongholds of Fashion, London and Paris. The two cities capitulated willingly and the European designers and makers smiled graciously as the energetic Yankees collected their customary loot. Leaving orders for early fall shipment, the American buyers, flushed with success,

returned complacently to the United States.

Then the European horizon was clouded by war. Mobilization orders were posted and weavers, designers, cutters and tailors answered the call to arms. Factories and shops were closed. Merchant ships were requisitioned and dry-docked at the navy yards to be converted into transports. Industry was halted. Shipping was uncertain. War was declared. American merchants spent part of last year's profits on cable tolls in an attempt to secure immediate shipment of fall goods ordered 4, 5, 6 months before. In most instances it was money wasted. The European manufacturer could not fulfill his contracts. Mars has dragged his employees from him and seized the vessels in which he had planned to send their creations to a waiting American market.

#### Some Merchants Favored of Fortune

A few merchants are showing imported goods. Several tradesmen, favored of fortune, had some of their foreign goods in bond in New York warehouses 3 months before the pot of militarism boiled over and their clerks need not shake their heads sadly when a prospective purchaser asks to be shown a French or English motor coat. Other merchants, equally as lucky, had buyers in London and Paris when the ambassadors were recalled. Re-

sourceful representatives they were too in the crisis. They hired motor cars, filled the tonneaux with the latest garments and speeded to the nearest port from which they embarked with their precious cargo and a press story of adventure and Yankee ingenuity that was certain to sell the goods the first morning they were put on display in New York and Chicago.

But of such coups there were few. The majority of the American merchants are not so fortunate. They have been forced to adopt the watchful waiting policy and while waiting for ships to arrive with foreign goods, they are showing domestic coats to motorists preparing for fall and winter tours.

#### Kaiser Seizes Cloth

In many instances, disappointment will be their only reward for Jobian patience. For example, the soldiers of the kaiser now are wearing army cloaks made of Loden cloth, an Austrian fabric, from which Marshall Field & Co., of Chicago, intended to cut motor coats for American sportsmen. The bolts were wrapped and la-



*Medium-weight English cape coat, designed and made by Wallace Scott & Co. It is made of homespun and Harris tweeds, thus insuring durability. Price \$25*





The double-breasted Aintree coat made by Kenneth Durward, of London, a large, roomy, warm coat, waterproofed and made with split sleeves, deep armholes and convertible collar. Price \$55



The Burberry double-breasted ulster coat, a smart garment and most appropriate for cold weather touring. It has a large one-piece sleeve to give the gentleman driver comfort and freedom at the wheel. Price \$50



Imported English balma-coat made by Kenneth Durward of London. A most desirable coat for the man who motors, since it has a large, full skirt, raglan sleeves, slash pockets and buttons close to the neck. It is proofed. Price \$50



Imported Curled tweed coat for general utility wear. This cloth is imported by the B. Priestley & Co. for Marshall Field & Co., who control its exclusive use in this country. The coat is cravenetted and comes in three shades. Price \$25

beled for shipment when they were seized by the German government, and although Loden kaiser coats will be shown by the Chicago concern this season, the output will be 250 garments less than that originally contemplated because of the partial confiscation of material. Incidentally, this coat is expected to make a distinct appeal to the motorist since the cloth is so thick and woven from a wool with such a long, oily hair that it is absolutely waterproof.

Not until the European war broke out and the resultant scarcity of imported coats emphasized the fact did the American motorist realize that John Bull held up the glass of fashion for him, that his British cousin across the water was setting the style. Now he acknowledges his debt to the Briton with whom clothes are as sacred as music to the German. He admits that the Englishman is producing a coat that is distinctive in cut and material—one that few, if any, domestic manufacturers can duplicate—and a coat out of the ordinary is what the American motorist now demands.

#### English Coat Approaches Ideal

The English motor coat is a masterpiece. It embodies both style and service. Australia, the Shetland Islands, Ireland and Scotland supply the wool from which the rich fabrics are woven by Scotch and Irish weavers. And what fabrics they are! Light in weight, but insuring the wearer the maximum warmth, distinctive in design and bold in color. English artists are responsible for the design, the cut, the tailoring. They introduced the loose arm-hole and sweeping skirt, two factors that



The coat shown at the left is made of burgundy velour with velvet collar, drop shoulder and setin sleeves. The fullness in the back is slightly gathered in under the collar and the coat in back has a set-on-ripple flounce and is finished with gathered patch pockets. Price \$75. The coat at the right is made of toupe duvryn. It has a standing collar with a band set-on, forming a yoke and extending across the shoulders, and a narrow belt in back. The fullness is gathered in at the hips and held in place by a wide band. Price \$75



An excellent knock-about coat for fall and early winter motoring. It is light in weight and yet has a great deal of warmth. It is single-breasted and cut with a very deep arm-hole and plenty of fullness in the skirt which should add much to the wearer's comfort. It is an importation from England and is proofed. Made exclusively for Marshall Field & Co. by Studd Millington, of London. Price \$45

have freed the gentleman driver from many of the discomforts of motoring. And now comes the announcement that the supply of English coats has been curtailed by the war, which means a curtailment of driving comfort should the European conflict be prolonged until spring and the American designer fail to supply a substitute as serviceable.

In obtaining an imported motor coat this season, the woman motorist should not encounter as much difficulty as the man, for the average garment that Milady Motorist

buys as imported is not an importation in all that that word implies. Often the coat is made of an imported fabric and probably is a copy of a French model, but generally it is cut and stitched on this side of the Atlantic. The same is true of motor bonnets, which are patterned after Parisian designs but made by an American milliner.

#### Few Radical Style Changes

No revolutionary changes have been made in the motor coats for men for the autumn season of 1914. The expansive wheel coat, first introduced in this country in the spring of 1913, continues to serve as a model for the majority of the imported garments this year. It is the forebear of the universally popular balmacaan, which is a wheel coat cut on more conservative lines. Deep armholes and a full skirt are features of the autumn apparel. Their retention is justified. They have been thoroughly tested and found to add much to the comfort of the gentleman driver, the deep armhole permitting free arm movement and the full skirt serving as a protection to the lower limbs and freeing the wearer from a hampered step in entering or leaving the car. Because of their great practicability, there is no reason why they





Motoring coat of green and purple mixture. This coat has a semi-military collar and a yoke in back, on which is gathered an expansive military cape which falls from the shoulders. The coat has slash pockets and fastens with ball buttons. Price \$75. The bonnet is a helmet shape of brown velvet, piped with brown grograine ribbon and finished with a brown grograine bow in front. Price \$10



English motoring coat of double-faced, plaid-backed mixture. It has a natural opossum collar and a narrow belt, running from deep side slash pockets to box pleat at the back and holding in fullness at the sides. Price \$22.50. The bonnet has a midnight blue satin crown and veil and a brim of black velvet. Price \$15

Motoring coat of imitation civet cat, cut full and loose and featured by a square collar, fastening high at the neck; large patch pockets and deep cuffs. Price \$60. The hat is the English aeroplane model with black silk crown and brim of black velvet. It fastens under the chin with tabs of black grograine silk. Price \$15



Imported motoring coat of green mixture. It has a loose velvet convertible collar, deep cuffs and large patch pockets. It fastens with fancy tabs. Price \$85

should not be features of the motor coats of many seasons to come.

Most of the English motor coats are unlined, but warmth has not been sacrificed by this elimination. The fabrics are soft and closely woven. They look warm and after wearing the coat for a few minutes on an Indian summer day, you are convinced that the eye has not deceived you. Although light in weight, coats made of such cloth bids defiance to the most ambitious November winds and should prevent the wearer from suffering any tortures akin to those experienced by arctic explorers even when the radiator demands anti-freeze solution.

#### Many Coats Are Belted

Many of the coats are belted at the waist, thus fortifying the wearer against a sly wind and a pelting rain. Coats made with convertible collars are more popular than those like the balmacaan which buttons close to the neck and sometimes interferes with free head movement. Most of the European designers have eliminated the inner sleeve as a superfluous protection, for the gauntlet gloves have come into favor once more and the gauntlet protects the forearm much better than the inner sleeve. Few coats with two and three-ply fronts are shown, prob-

ably because the extra warmth did not justify the excessive cumbersome.

A practical and distinctive coat is the goal for which the English designer has been striving. He is attaining it gradually. He has gone far in the past 2 years. If you doubt

such an assertion, compare the tight-fitting, arm-binding, neck-choking coat you wore in the fall of 1912 with the loose, comfortable garment that is shown in the stores this season. The ideal motor coat has not been made as yet, but the experimental stage has been passed. Minor refinements, not basic principles, now are sought by the London tailor.

#### Those Checks!

Because the motorist demands a more distinctive coat than ever before, a coat for touring that is far different than that which he wears on the street, the 1914 models are blatant. Black and white checks are extremely popular. The checks, moreover, are far from microscopic, some being an inch square. Green and brown mixtures and homespun are two other distinctive fabrics used for the autumn coats and are less conspicuous than the checkerboard effects.

Among the domestic coats, the fall innovation is the balmacaan mackinaw. Continual refinement of the mackinaw appears to be the aim of the American manufacturer. A year ago he converted the lumberjack's coat into a motoring garment by the use of patch pockets and a belt. He has gone even farther this



*The English Burberry gabardine Tielocken coat. This coat, emphasized as one of the most desirable garments for motoring, buttons only at the neck but is tightened with a belt which follows around the waist line making the coat dust, water and air proof. It is light in weight yet warm as*

*it does not allow the chilling winds to penetrate. This coat is made very large through the body and sleeves so that it can be worn over heavier garments. Price \$35*

season and produced a coat that is far more practical than the mackinaw of other years and possessing greater individuality. Moreover, he has selected fabrics more subdued in coloring and, as a consequence, the mackinaw-clad motorist is not so apt to be mistaken for a Navajo Indian.

England has produced two very serviceable raincoats for the American motorist this season. One is the Burberry gabardine coat. It buttons only at the neck, but it is held in around the waist by a belt, which makes it dust, water and airproof. It is light in weight, yet warm, as it does not allow the chilling winds to penetrate. This coat is made very large through the body and sleeves in order that it can be worn over heavier garments.

#### Rubberized Silk Slicker

The other waterproof coat is a rubberized silk slicker. It is so light in weight that it can be rolled up into a bundle small enough to be carried in the coat pocket. The need for a rain coat in the tonneau is not as great as was the case 2 or 3 years ago, however, as the majority of the motor coats now are waterproofed and woven from a wool that will withstand any but the heaviest storm.

The trend in women's motoring coats is toward narrow shoulders, large sleeves and full skirts, service as well as style being sought by the designers. European militarism is reflected in the glass of fashion, for one of the most popular of the autumn coats resembles that of the Russian cossack, having an extremely sweep-



*One of the newest motoring coats shown—the cossack model of orange wool-plush. It has a very full skirt, the fullness being held in at the waist by a wide belt. The convertible collar and the sleeves, at the cuffs, fasten with black link buttons. Price \$35.*



ing skirt gathered at the waist by a wide belt. Dutch influence also is seen in the coats which have their fullness gathered in at the sides.

The woman motorist this fall will not be as conspicuous as she was a year ago when tango, green and red were popular colors and tartan plaids were the vogue. Less glaring in brilliancy are the burgundy and mahogany, toupe and tete de negre coats shown this season. The vivid plaids have been replaced by the green and brown mixtures. Richer, more subdued hues have been adopted by the style dictators.

#### Sport Coat Is Passé

The sport coat, which had a great vogue last fall and this spring, no longer is considered correct for motoring. It has been condemned as too short and tight-fitting and has abdicated the throne of popularity to the garment with loose sleeves and sweeping skirt.

Many of the women's motoring coats are trimmed with fur. One very practical garment shown this season is a coat of mahogany wool plush with roll collar and wide, deep cuffs of otter. The sleeves are fully 12 inches longer than the arms, permitting the cuffs to be used as a muff when the wearer is seated in the tonneau.

Coats of imitation fur also are very popular. One model comes either in imitation civet cat or leopard skin and the fabric is such a splendid imitation that a glance at the price, \$60, makes you believe that a mistake has been made in ticketing it. This coat is cut full and



*Motoring coat of ruby cut velour. It has a Norfolk back with wide pleats and belt running clear around and a high yoke from which drops a short cape. The collar is of the standup type but does not button close to the neck. Price \$75.*

loose and is featured by large patch pockets, a deep cuff and a square collar fastening high at the neck.

#### Few Hats Have Veils

The majority of the fall motor bonnets are not draped with veils. Chiffon invites the wrath of autumn winds and close-fitting hats have been found to protect milady's tresses much better than yards of billowy veiling. The milliner's innovation for this season is an aeroplane

model of black velvet that fastens under the chin with tabs of black grograine silk.

*Editor's Note—The coats and hats shown in the illustrations accompanying this article are from Marshall Field & Co., Chicago, and from Mandel Bros., Chicago, the former supplying the masculine apparel and the latter the women's garments and bonnets. Motor Age also is indebted to the Chicago agents of the Stutz and Locomobile, these cars being used in taking the pictures from which the illustrations were made, the Stutz being used as a background for the men's coats and the Locomobile for the women's. The photographs from which the illustrations were made were taken by Burke & Atwell, Chicago*

## European Governments Buy Motor Trucks in America

### Orders for 3,000 Placed; Makers' Names Kept Secret

PHILADELPHIA, Pa., Oct. 2—What companies have secured the contracts to furnish the approximately 3,000 armored and gun-mounted motor trucks to be built for service in the European war cannot be determined. The Bethlehem Steel Co., of which Charles M. Schwab is president, is understood to have secured a contract totaling \$5,000,000 from either France or Russia, presumably both.

Owing to a request issued by the state department at Washington to the effect that industrial concerns in the United States receiving orders from European countries engaged in the war should avoid publicity so far as is possible, no public announcement of the order could be secured from South Bethlehem and for a similar reason local dealers will give no details.

For the past few days more than a hundred salesmen and representatives of prominent concerns have had specimen trucks

in South Bethlehem giving a general demonstration of what they could do. These cars were of every conceivable size, capacity and shape and adapted to a variety of uses. It was believed that a large portion of the order would consist of non-armored trucks.

That no one company secured a monopoly on the order is certain, as the time for delivery is limited and it would be a physical impossibility to furnish such a large number in so short a time.

The tests have ended and the contracts awarded, but the successful companies and the number of cars they are to furnish not made public. That the tests were satisfactory is indicated by the warm praise bestowed on the manufacturers by the officials of the Bethlehem company.

Just how such a vast number of cars are going to be delivered upon completion to the belligerent nations is also being kept secret. The supposition is that they

will be shipped to some Canadian port.

A report also was strongly current today that the Driggs-Seabury Ordnance Co., of Sharon, Pa., had received an order from the French government for 2,500 motor car frames contingent upon delivery of a specified number within 60 days.

#### UNCLE SAM NEEDS ARMORED CARS

Washington, D. C., Oct. 6—Special telegram—Some time this week Congressman Anthony, of Kansas, member of the house committee on military affairs, will introduce a bill to have the United States army adopt and purchase armored motor cars as a regular arm of the military service. Several other members of the committee have kept close watch on the war efficiency of armored cars as described in European dispatches and the sentiment at the capitol is that the present war has demonstrated that this government no longer can afford to be without this equipment.



# Democratic Caucus Against Taxing Cars and Gas

## Favorable Action Taken by Law-Makers at Washington

WASHINGTON, D. C., Oct. 7—Special telegram—The motor industry gained a big victory late last night when the democratic caucus of the senate voted to eliminate the proposed tax on motor cars and gasoline. It is expected the increased tax on beer and 5 cents a gallon on rectified spirits will offset the loss on the motor car and gasoline taxes. While the latter taxes have been thrown out by the democratic caucus, it is expected the house will try to put them back. A long fight on the war revenue measure is expected to prolong the session of congress.

Doubtless the action of the caucus was influenced largely by the telegraphic broadside of the motoring interests. The National Automobile Chamber of Commerce and the American Automobile Association directed a fight which resulted in protests from all sections of the country against taxes on motor cars and gasoline.

## National Automobile Chamber of Commerce Directs Attack on War Tax

WASHINGTON, D. C., Oct. 6—The last draft of the proposed war tax revenue measure as drafted by the three southern senators, places a tax of 1 cent a gallon on gasoline and 50 cents per horsepower on passenger gasoline cars, this horsepower tax to be paid by the manufacturer or dealer. The tax will be paid by the manufacturer excepting under conditions where he already has contracted for the sale of his cars with his dealers, in which case it is expected that the dealer will have to meet the bill.

Alfred Reeves, general manager of the National Automobile Chamber of Commerce, was in this city today representing his organization, and hoping to make a date for a public hearing on the measure. A public hearing was denied but he was granted a conference with two of the senate committee, Senator Simmons of North Carolina and Senator Williams of Mississippi. Senator Gore of Oklahoma, the third member of the committee, was not present.

The committee acknowledged to Manager Reeves that more pressure was being brought to bear against the gasoline tax than had been brought against any similar measure in Washington. Practically all motor car manufacturers, all accessory manufacturers, all motor car dealers' associations, and a great many of the large car and supply dealers have forwarded telegrams to the committee. Scores of other organizations have forwarded their resolutions and from all parts of the country protests have arrived against the measure.

The reduction of the gasoline tax from 2 cents a gallon to 1 cent was brought about largely by the general protests not only from motor car manufacturers but also from the thousands of farmers using stationary engines and gasoline engines used in power plants and other places. The sentiment is general that the present compromise of 1 cent a gallon on fuel will not be seriously disputed but the horsepower tax of 50 cents per horsepower will be combated from the start.

What 50 cents per horsepower on gasoline passenger cars means to the motor industry does not seem to be comprehended by the committee, which considers the gasoline pleasure vehicle solely a luxury, and

not a business necessity. The committee seems to be unanimous in the belief that there are scores of large motor car concerns making fabulous fortunes each year, and entirely neglects the hundreds of small companies that would practically be forced out of business by the horsepower tax. Take, for example, a concern manufacturing 1,000 cars per annum of 40 horsepower. This company pays a tax of \$20 on each car, making a total of \$20,000 per annum war revenue which this company must pay. This annual tax of \$20,000 represents a 5 per cent dividend on a capital of \$400,000, which would be necessary for such a manufacturing organization. There are many motor car concerns not manufacturing as many as 1,000 cars, and generally these cars are of moderately high horsepower, so that the horsepower tax is going to act heavily against the small maker rather than the large manufacturer.

A tax of 50 cents per horsepower on the Ford output alone for 1914 gives an annual revenue of \$2,475,000, this being based on a production this year of 220,000 cars, each with a rated horsepower of 22.5.

Some conception of the revenue that may be derived from 1 cent per gallon on gasoline may be obtained when it is remembered that the total registration of motor cars in the United States up to July 1 approximated 1,500,000 passenger vehicles.

Estimating conservatively that these would average 5,000 miles per year travel, and that their average gasoline consumption would be 15 miles per gallon, there is a total of \$5,000,000 tax from this source alone, but this would not represent the total gasoline tax as there are great quantities of gasoline used in other services that would come under the tax. These interests also are protesting.

Already the car dealer is taxed in many different ways, and the additional tax proposed by the senate committee would place an unreasonable hardship on many motor interests. For example, a dealer in motor cars in North Carolina, it is reported, has at present to pay \$500 per year for the privilege of doing business. To this we must add the various registrations that are required. Each state registers the cars and in many states personal property taxes on motor cars are paid; chauffeurs are registered in excess of horse drivers, and several states have wheel taxes which are particularly burdensome. In the state of Iowa, with its 100,000 cars, it is estimated that the gasoline consumption is 75,000,000 gallons annually, which gives a revenue from this state alone of \$750,000. It is not surprising that a general protest from all owners and dealers in vehicles should come from this state as well as others.

## Car Manufacturers Telegraph Protests to the Senate

WASHINGTON, D. C., Oct. 3—A big battle over the war tax is now on in the senate. It is expected to continue for a week and probably longer. In the end the new revenue bill will be passed and additional taxes imposed. But republican senators are bent on a thorough discussion of the bill and a full airing of their views before the measure goes through.

The volume of protests against the war tax measure is increasing. Protests are coming in from practically every industry or interest affected by the additional taxation. The motor car manufacturers through Senator William Alden Smith, of Michigan, have hurled a mighty protest against the senate proposition to put a selling tax

based on the horsepower on motor cars and 25 cents per horsepower on owners' cars.

During the course of a speech in the senate today Senator Smith read telegrams from many manufacturers protesting against the proposed tax. Herewith are presented some of these telegrams:

Nordyke & Marmon: Proposed tax is the greatest menace to the industry in its history, owing to the contracts existing with dealers. Tax can not be passed on to consumers and will fall as an unjustifiable burden principally upon the states of Michigan and Indiana. Motor car manufacturing is one of the few industries that has kept the spark of industrialism alive in the United States during the long depression the country has been passing through. The motor car manufacturing industry as a whole is in no condition to stand this discriminatory tax.

C. W. Nash, president Buick Motor Co.: Senate committee's recommendation taxing owners and manufacturers of motor cars is the most serious blow that could be dealt this industry. We appeal to you to use all

honorable means to save Michigan's greatest industry. Also request hearing of manufacturers before senate committee.

**Hupp Motor Car Co.:** This seems to be vicious class legislation. No other industry has been singled out for such drastic and confiscatory action. The motor car must be recognized as a public necessity and convenience instead of a mere luxury. The hundreds of thousands of users of cars in the United States are entitled to the same fair and just treatment that should be applied to all other owners of property.

**Chalmers Motor Co.:** We already have been forced to make a reduction in the price of our cars, due to conditions existing abroad and a tax of \$40 per car would reduce the profit to a point where the successful operation of our company would be seriously impaired.

**Studebaker Corp.:** The proposed special tax is intensely disturbing to the entire motor industry. It immediately threatens the existence of numerous companies and the consequent elimination of income to many thousands of employees. Such an overwhelming blow to the motor industry at this critical time would positively introduce wide disaster. There are approximately 1,548,350 cars owned in the United States, whose owners already pay property and state taxes. The majority of these cars are owned by persons in moderate circumstances and the use of these cars largely for business purposes makes them practically a necessity. The imposition of a third tax on motor cars and car owners is a positive burden amounting to discrimination. It is confiscation. The gravity of this proposed step and its far-reaching influences, which, in our opinion, can not have been adequately and thoroughly reviewed, make a hearing in conference on this subject of vital importance and we respectfully request an early opportunity to lay before you important facts in connection with the proposed plan.

**Cadillac Motor Car Co.:** Congress surely does not appreciate what would be the effect upon the entire motor industry if proposed impost were forced. Michigan, in particular, would suffer a staggering blow. The motor car has become a commercial necessity for the whole country and its manufacture should be encouraged and not crushed. Michigan now depends largely upon the motor industry for employment and thousands of Michigan workmen would become injured by such an unjust tax.

**Federal Motor Truck Co.:** New proposed tax for motor truck manufacturers means suicide. Truck manufacturers in America to date have not made a dollar. Trucks are not a luxury; are sold on cost of installation and operation. Any additional tax will have bad effect on truck industry.

**Henry B. Joy, president Packard Motor Car Co.:** Proposed additional tax is unfair and inequitable in the extreme. We now pay in taxes \$35 on every vehicle we ship. Proposed tax would increase taxation to \$75 each, in impossible, burdensome taxation.

**Charles Thaddeus Terry, general counsel National Automobile Chamber of Commerce:** Motor car manufacturers throughout country protest against tax. Motor cars now pay three taxes. More taxes will destroy industry.

**Imperial Automobile Co.:** If the proposed tax becomes a law you will ruin every motor car manufacturer in America.

In addition to the above telegrams of protest have been received by Senator Smith and Senator Townsend from the Stutz Motor Car Co., Briscoe Motor Co., Jackson Auto Co., Abbott Motor Car Co., Anderson Electric Car Co., Briggs-Detroit Car Co., Commerce Motor Car Co., Cricket Cyclecar Co., Day Automobile Co., Dodge Bros., Ford Motor Co., Hudson Motor Co., Krit Motor Car Co., Regal Motor Car Co., Saxon Motor Co., Signal Motor Truck Co., Wagenhals Motor Co., Wahl Motor Co., Public Motor Truck Co., Cartecar Co., Durant-Dort Carriage Co., General Motors Truck Co., Havers Motor Car Co., National Motor Truck Co., Oakland Motor Car Co., Olds Motor Works, Reo Motor Car Co.

In his speech Senator Smith said that for the committee to proceed behind closed doors to place a burden upon the industries of the country without giving the people affected an opportunity to be heard was a most exceptional method of

procedure and one inviting the sharpest condemnation.

"Even my republican associates are forbidden to enter the committee room of the finance committee while this work of devastation is going on," he continued. "I want to protest in very vigorous language to this method of procedure. It is regrettable that only through the public prints are the people to be affected apprised of the nature of this proposed democratic tax. The motor car companies employ thousands of men at good wages. If some one must bear the results of democratic folly, why not distribute the burden equitably? Why should the motor industry be selected for this further experimental test of democracy? Why should

that industry be called upon to pay \$16,000,000 as a tribute to Underwoodism? In my judgment there is no occasion whatever for resorting to this method of taxation.

"The telegrams I have read disclose the apprehensions of enterprising people all over my state regarding this proposed legislation. I share their apprehension; I voice their indignation. This proposed legislation is un-American; it is intensely partisan; it is sectional in its character; it is unworthy of our American traditions and I beg the members of the finance committee to give the industries so vitally affected by this legislation an opportunity to be heard before this war tax is imposed on the people."

## Detroit Manufacturers Protest Against War Tax

**DETROIT, Mich., Oct. 3—**The proposed government tax of \$1 per motor car horsepower to be assessed against the manufacturers and a taxation of 25 cents per horsepower to be paid by the car owners has been met by the most unanimous protest on the part of Detroit and other Michigan motor car builders any government measure has met with here in years. Hardly were the facts known than the movement was started, as quick action is absolutely necessary.

At first it was planned to call a meeting in this city of the representatives of the car makers, but this would have meant a considerable loss of time, therefore Vice-President E. R. Benson of the Studebaker Corp. prepared a protest the tenor of which was communicated to every one of the thirty-three concerns which accepted it as representing their views on the subject, and it was then sent by telegraph to each of the Michigan congressmen in Washington. The telegram is worded as follows:

The proposed special tax upon manufacturers of \$1 per horsepower on each motor car manufactured and a 25 cent per horsepower tax upon each motor car owner is intensely disturbing to the entire motor car industry. It immediately threatens the existence of numerous companies and the consequent elimination of income to many thousands of employees. Such an overwhelming blow to the motor car industry at this critical time would positively introduce wide disaster, as many manufacturers are now having serious trouble in marketing their product. The fluctuating nature of this industry and the deterrent effect upon sales if this tax were imposed would prevent a realization of the amount anticipated and required by the government.

There are approximately 1,548,350 motor cars owned in the United States whose owners already pay property and state taxes.

The majority of these cars are owned by persons in moderate circumstances and the use of these cars largely for business purposes make them practically a necessity. The imposition of a third tax on motor cars and motor car owners is a positive burden amounting to discrimination and is more than any single constructive and beneficial business should be expected to bear. It is confiscation. The gravity of this proposed step and its far-reaching influences which, in our opinion, can not have been adequately and thoroughly reviewed, make a hearing in conference on this subject of vital importance, and we respectfully request an early opportunity to lay before you important facts in connection with your proposed plan.

Signed: the Studebaker Corp., Abbott Motor Car Co., Anderson Electric Car Co., Briggs-Detroit Car Co., Cadillac Motor Car Co., Chalmers Motor Co., Commerce Motor Car Co., Cricket Cyclecar Co., Day Automobile Co., Dodge Bros., Federal Motor Truck Co., Grinnell Electric Car Co., Ford Motor Co., Hud-

son Motor Car Co., Hupp Motor Car Co., Krit Motor Car Co., Packard Motor Car Co., R. C. H. Corp., Regal Motor Car Co., Saxon Motor Co., Signal Motor Truck Co., Wagenhals Motor Co., Wahl Motor Co.; Republic Motor Truck Co., Alma; Buick Motor Co., Flint; Cartecar Co., Pontiac; General Motors Truck Co., Pontiac; Durant-Dort Carriage Co., Flint; Havers Motor Car Co., Port Huron; Jackson Automobile Co., Jackson; National Motor Truck Co., Bay City; Oakland Motor Car Co., Pontiac; Olds Motor Works, Lansing; Reo Motor Car Co., Lansing.

If the taxes would be adopted it is estimated that Detroit manufacturers alone would pay \$12,000,000 or more into the government treasury.

Based upon the S. A. E. horsepower rating and provided the output is 300,000 cars, the Ford Motor Co. would have to contribute \$6,750,000, while the owners of these cars would add \$1,687,500 to the fund. Thus the revenue from the Fords would total \$8,437,500. Putting the Maxwell output at 60,000 cars, the Maxwell Motor Co. would have to pay \$1,266,000. If the Hudson makes 10,000 cars the tax would be approximately \$294,000, and that of the Packard Motor Car Co., if its output is 5,000 cars, about \$205,000. The Studebaker Corp. would have to pay about \$1,176,000 if it makes 50,000 cars. The approximate taxation for the Chalmers Motor Co., if its output is 10,000 cars, would be near \$249,125.

It has been learned since that the senate committee reduced the tax on manufacturers from \$1 per horsepower to 50 cents.

### ABBOTT MAKING SIXES ONLY

**Detroit, Mich., Oct. 6—**The Abbott Motor Co. will manufacture only six-cylinder cars for 1915. At the present time a six having a Continental motor 3½ by 5½ and a wheelbase of 130 inches is being delivered with a five and also a seven-passenger body, the former costing \$2,090 and the latter \$2,190. A six to weigh about 2,100 pounds with a 116-inch wheelbase and a motor probably 3 by 5, will be marketed early next year and the Abbott company is endeavoring to exhibit this car for the first time at the New York show. The price will not be announced until then. The company contemplates manufacturing 2,500 cars for the 1915 season.





**MOTOR AGE**  
Published Weekly by  
**THE CLASS JOURNAL COMPANY**  
910 SOUTH MICHIGAN AVENUE CHICAGO

**NEW YORK OFFICE**  
239 West 39th Street

**SUBSCRIPTION RATES**  
United States and Mexico  
\$3.00 per Year  
Other Countries including  
Canada \$5.00

Entered as Second-Class Matter September 19, 1899, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879

Member of the Audit Bureau of Circulations

## As Foreigners See Our Trucks

EMISSARIES of foreign governments now in America for the purpose of looking over American trucks, which may be needed should unexpected developments take place in the European war zone, have afforded a good opportunity to the American maker of seeing the exact atmosphere in which European engineers view our truck industry. These engineers have up to the present looked over a score or more different makes of American trucks, and they practically agreed on many criticisms on our product, which may profit makers to hear.

AMERICAN trucks are too heavy, in their estimation. They weigh approximately 15 to 20 per cent more than the European vehicle of the same capacity. This extra weight is considered by the foreigners only as a handicap on the truck in that it is going to wear out many parts of the truck to carry this added load around. This extra weight means more load on the wheel bearings, more load on the axles, more load on the steering gear, and more strain on many other parts. This condition is interpreted by the foreigner as indicating greater wear and, consequently, shorter life.

ONE of the European engineers, in making his analysis of the American trucks, views them solely from the standpoint of wear. His government is obviously looking for vehicles that will wear the longest. With him added weight means added wear and correspondingly reduced service.

IN analyzing the wearing qualities of a truck the question of spring suspension is given early consideration. A truck with good spring suspension is assured of the rubber tires riding steadily on the road surface whether loaded or not. If the rubber tires do not adhere to the road surface, but bounce up and down more or less, there is unnecessary wear. Every time a tire leaves the surface there is greater wear than where it holds steadily to the surface. From this it is a natural deduction that the truck with low tire economy must of necessity be one with a good spring suspension, which permits of the tires adhering regularly to the road surface. In this light spring suspension becomes a very important factor, a much greater factor than it has been considered by several American truck manufacturers and which is a point well deserving of thought on the part of engineers.

ACCESSIBILITY of parts has been a consideration with practically all foreign emissaries investigating the motor truck field. Perhaps accessibility has a greater meaning in the war zone than in the fields of ordinary industry, but if this is the case, and apparently it is, then it is only the case because the exigencies of war make accessibility imperative, whereas in the natural channels of industry the lack of accessibility does not become such a great factor. Some of the foreign representatives were frank enough to state that if they purchased certain makes of trucks they would be compelled to change the design of spring hanger before the trucks would enter the war zone. It is expected that springs will occasionally break, and whether in war or industry the design should be such that a repair can be effected with the least expenditure of time.

QUESTIONS of carburetion and lubrication are not so potent factors as might be anticipated in that the question of fuel consumption is, to an extent, a problem local to the make of carbureter, some factors entering into manifold design, and other local questions, which the purchaser can cope with to a very material extent. With lubrication, if it is not considered adequate, auxiliary feeds can be readily adapted, as was demonstrated in the days of stock-car racing in America, so that these problems are not as important to the foreign buyer as might be anticipated.

THE foreign buyer is not materially interested in abnormal truck demonstrations, largely because the trucks in war service in Europe are today confined almost entirely to work on the highways, there being very little, if any, cross-country, or cross-field work, due to the great complexity of highways in the present war zone. The foreign country, in looking for trucks, is not looking for an impossibility, but is looking for a legitimate product which can give satisfactory service on highways as hard and generally as good as our average city streets. Viewed in this light, the question of the wearing qualities of the truck becomes most important.

IN the light of a truck's ability to wear, or to endure, the question of adjustability of wearing parts is important. In trucks there are bushings that, no matter how perfect the lubrication, will wear. Where this wear occurs the foreigner expects means of adjustment, whereby additional wear can be had without fitting a new part. This applies to bushings in steering parts as well as in many other parts. We are accustomed to inserting shims in the lower ends of the connecting rods in order that wear of the bushings can be readily taken up and the foreigner cannot understand why this practice cannot be followed out in other bushings in the car.

IT is highly desirable for everyone in life to at some time have little glimpses of ourselves as others see us. The past 2 or 3 weeks have afforded many American truck makers the opportunity of seeing themselves as the European sees them, and in these days, when all our makers are looking towards the possibility of developing an export business in trucks, it is of prime importance that these side lights on our own selves be given primary attention. It is an opportunity that does not occur frequently. This is all the more reason why the lesson should be learned well.

PERHAPS it is for the best that we are given this opportunity of seeing ourselves as others see us. The frank criticisms of the foreign emissaries can be taken advantage of by those American makers who are looking for the war to give them an opening in the European market. No matter what our theories are, business principles demand that we give the buying public what it wants, so these hints from the other side of the Atlantic should be ones to be heeded by Yankee concerns in the business of manufacturing trucks. The European governments have had opportunities to try out the motor trucks that have been denied us, so the remarks of their representatives should carry considerable weight at the present time.



# Motor Posse Runs Down a Murderer in Nebraska

## More Than 1,000 Cars and 2,500 Men in Exciting Chase

**H**ARVARD, Neb., Oct. 3—The motor car as an aid in the pursuit of criminals was given a most severe test in this county last week, when 1,000 machines, transporting 2,500 armed men, were used in the pursuit of the murderer of H. P. Traut, a local business man, and of Sheriff Sanderson, of this county.

The chase, which was directed by telephone and carried out in motor cars, ended in the suicide of the murderer, who preferred death at his own hands rather than lynching by a mob of infuriated farmers. The murderer has not yet been identified, but he is believed to live somewhere in the northwest, probably at Seattle.

The man-hunt was the most systematic ever organized in Nebraska and by intelligent use of motor cars the murderer was overtaken and had committed suicide in less than 5 hours after committing the crime. And in that time a small army of 2,500 armed men had been mobilized and put in the field. Motor trucks, gathered from surrounding towns, also were used in bringing men to the scene of the last stand of the bandit.

### Grain Elevator Man Murdered

Traut was manager of a grain company in Harvard and went to his office very early each morning. On Tuesday morning he left his house at 6 o'clock. Half an hour later he was found dead on the floor of his office with a bullet hole through his heart. Sheriff Sanderson was immediately notified by telephone and hastened to the scene. A quick inquiry disclosed the fact that a stranger, who had arrived in Harvard on the Burlington railroad the night before, had been seen hurrying away from Traut's office a few minutes before the murder was discovered. The stranger had taken the country road leading to the north. Traut had been robbed, his pockets torn open and everything of value taken.

This county is one of the heavy crop producers of Nebraska and all the farmers are well-to-do. Practically every one of them has a car. Sheriff Sanderson took advantage of this fact and instead of rushing into a wild-goose chase of the murderer of Traut, he went to a telephone and called up a number of farmers living in the general direction taken by the fleeing murderer. To each farmer he gave a short description of the man and asked that everyone keep a sharp lookout for an hour or so.

Within 15 minutes, however, there came a call for the sheriff. It was from one of the farmers who had been asked to watch the roads. He reported that a man answering the description of the murderer had just passed his house. He was walking rapidly towards the north.

In anticipation of something of this

sort, Sheriff Sanderson had already provided himself with a motor car, which was standing at the door of his office. The engine was running and the chauffeur was in his seat. Within a minute of the time of receiving the tip the sheriff was enroute to the place where the murderer was last seen. This proved to be a big clump of weeds by the side of the road.

### Also Shoots Sheriff

As Sanderson alighted from his car there came a single shot from these weeds and the sheriff dropped with a bullet through his heart. Two more shots were fired and the chauffeur, who had been deputized, was so badly wounded that he fell from his seat. Then the double murderer coolly climbed through the barbed-wire fence and made his escape without much trouble.

But again the motor car came into use. A farmer's wife, standing at her window, had seen the fight and the death of the sheriff and the wounding of Phillips, the chauffeur. She hastily went to a garage in the rear of her home and climbed into a little roadster. She drove with all speed to Harvard, where she told what had happened and advised that help be sent at once. The officers present immediately set about organizing the men and telephoning to the farmers, asking them not only to watch for the unknown murderer, but all were asked to take part in the hunt, which was to start at once. Surrounding towns were notified and were asked to send assistance. The town of Fairfield, a near neighbor of Harvard, was asked to call out the company of militia, both to take part in the search and to protect the murderer, should he be captured.

In half an hour there were a thousand motor cars on the roads of this county. And in these were 2,500 armed and determined men. They came from every direction and from every town and hamlet and farm in the county. In the meantime the police kept track of the fugitive by the aid of the telephones. In this manner the murderer was tracked to a hayfield, which was entirely surrounded by motor cars, loaded with men and guns. The posses fired a number of shots at random into the hay, but were unable to dislodge the murderer, who was known to be armed with an automatic pistol. Finally the dry hay was set on fire and a line of motor cars followed in the track of the flames through the field.

### Murderer Commits Suicide

When the line reached the middle of the hayfield, the murderer suddenly sprang from beneath a windrow, placed his pistol to his head and committed suicide in the presence of his pursuers. The body fell into the fire and was partially burned.

But it has not yet been identified by anyone in this vicinity.

The successful pursuit of the murderer showed the value of the motor car, when used intelligently, in a matter of this kind. It probably was the first case of the kind ever experienced. Certainly it proves the utility of the motor car.

### HAWKEYES HOLD ROAD MEETING

Des Moines, Ia., Oct. 3—Seven thousand visitors thronged Iowa City to attend the River-to-River road picnic, the motor races and the other attractions offered. The road meetings were full of enthusiasm, particularly that held by the River-to-River organization. An estimated total of 1,500 cars from other towns were in Iowa City and of these 750 were in the big parade.

At the River-to-River road meeting, which was attended by good roads enthusiasts from Davenport to Des Moines, Pete Petersen, of the former city, created a sensation by issuing a challenge to any one in the world to race him from Davenport to Des Moines, he taking the River-to-River road and his opponent the Great White Way, for a side bet of \$1,000. Petersen explained that he did this as a means of showing his confidence that the River-to-River road is the shorter and more practicable of the two.

Hal R. Wells, the Des Moines director for the road, was one of the most enthusiastic of those present at the meeting. He explained that the Polk county section of the road is now in first-class condition, with the poles painted and the road graveled.

Prizes were awarded in the parade as follows: Marengo, \$10 for the greatest mileage of cars; Marengo, \$10 for band coming the longest distance; Oxford, \$10 for town on the road bringing the greatest number of cars. On the Canada, Kansas City and Gulf, Kalona won the \$10 for greatest mileage; on the Red Ball route it went to La Porte City, which sent seventeen cars over the 77-mile of road between Iowa City and that place; on the White Way short cut, Wellman took the prize, and on the Lincoln cutoff, West Branch, with fifty-two cars, was first.

### STUDEBAKER BUYS COTTON

Detroit, Mich., Oct. 3—The Studebaker Corp. has instructed its branch managers in Atlanta, Ga., Dallas, Tex., and St. Louis, Mo., to purchase 500 bales of cotton at 10 cents a pound from cotton growers only. If eventually this cotton is sold at a higher price than the purchase price, the difference will be paid to the growers from whom the cotton was bought by the Studebaker people.

# With Bradley and the Motor Car on the Firing Line

Motor Age Correspondent, in British Uniform, Gives First-Hand Information as to the War Performances of Gasoline-Propelled Vehicles



A GERMAN MOTOR CONVOY ATTACKED AND DESTROYED BY FRENCH TROOPS IN THE FOREST OF VITTERS COTTARET

**EDITOR'S NOTE**—*Motor Age* is indeed fortunate in having as its European correspondent W. F. Bradley, one of the most prominent figures in European motoring circles and who is well known in this country through his many articles in *Motor Age* as well as for his having headed the European invasion of the Indianapolis speedway last summer, which resulted in a Delage victory on Memorial day. Since the war broke out Mr. Bradley has been at the front and since his last article in *Motor Age*, published September 17, he has "joined the colors" and at the present time is driving a motor car in the English service, carrying officers from headquarters to the firing line. This places him in a position to secure first-hand information as to the performances of motor vehicles in the great war. His present article will be found to be thrilling indeed and goes far toward proving that motor transportation is the feature of the present disturbance.

PARIS, Sept. 25—We speak and write of the importance of the role played by motor cars in this great war, but no man who has not been in active service can appreciate to the full the work done by mechanical transport. The opportunity presented itself to me to go into active service as a motor car driver, doing the same work as well-known race drivers and hundreds, indeed thousands, of more humble motorists. I accepted this offer, and at the present moment am wearing the British uniform, driving officers from the base to army headquarters, from headquarters to the firing line—doing any kind of work which may be required. This is the story of a spell of service, a period in which days were lost count of, for the completion of the task and not the setting of the sun decided that rest should be taken.

I was given orders to report at the depot 6 miles away within half an hour. The first work was to carry officers in the district of Paris and to the army base. Officers never make use of the railway—unless they are prisoners. The only rapid means of locomotion is the motor car. The

## By W. F. Bradley

trip from Paris to the nearest point of the firing line can be made in 3 to 4 hours with a fast car. The average time on the train is from 20 to 23 hours. While military men are making the greatest possible use of cars, civilians are being restricted to the utmost. Within the zone of the armies it is absolutely impossible for a civilian motor car to penetrate. Newspaper men in particular have made wily and determined efforts to break through, but without success. The seizure of the car and the return of the occupants on foot, escorted by gendarmes, effectively puts a stop to any such schemes.

### Roads Only for Soldiers

The freedom of the main roads from all other kinds of traffic and the right of way which the military man enjoys make it possible to maintain a very high average rate of speed. A pace of 30 or 40 miles an hour can be set and maintained for hour after hour, the only necessity for slackening being on turns or when army convoys are met.

After a full day's work in and around

Paris I was given the order to drive to the headquarters of the British army in the field. Paris is a fortified city, with gates closed and breastworks outside the gates. Civilians driving cars only get through with great difficulty; military cars have the right of way. Five miles from the city walls a deserted country is entered. All the troops are at the front and most of the civilians have fled. From time to time a wrecked motor car is seen by the roadside. When a machine breaks down under war conditions it has to be repaired on the spot or abandoned. There are no resources other than those possessed by the driver, and if he is unable to carry out the repair the best plan is to strip the chassis and leave it. It is almost painful to see high grade cars rotting and rusting by the roadside when a little unobtainable assistance could have saved them.

Most of the cars seen on the road are high-grade machines bearing all the evidences of hard and continuous work. In a little village where I was held up for a few seconds a handsome Rolls-Royce with a costly boat-type body appeared. A



German helmet was tied to the radiator cap, the body was thickly coated with mud, and tied around the car were cans of gasoline and boxes with provisions.

The battle of the Marne had come to a close about a week before I ran through this district. But all the ravages of war were to be seen. At the town of Meaux half of a rickety bridge spanned the Marne. This point had been under heavy fire, for the houses at the approach to the bridge were in ruins, and an English motor truck which somehow or other had got into the line of fire was in such a condition that it was not even worth the attention of the junk dealer. All the barges in the river at this point had been sunk. Between Meaux and Chateau-Thierry, about 40 miles up the river, not a single bridge has been left intact. At one of these towns on the Marne river the bridge had been blown up by the French at 2 p. m. At 2 o'clock the following morning German officers approached this bridge in a Benz limousine. Not knowing that it had been demolished, they rushed across at high speed to fall to an instant death.

After crossing the Marne at Meaux it was discovered that we could not get back to the north side without making a wide detour to Chateau-Thierry, a town famous years ago for its hill-climbing competitions. Consequently we swung round and recrossed the Meaux bridge, making a detour on the north bank to Chateau-Thierry. This brought us through a big portion of the Marne battlefield. All the dead and wounded had been removed, but horses still lay in the fields and on the roadside.

#### Countryside Devastated

But what most impressed one as a tourist was the utter untidiness of the whole countryside. One hill had been under heavy shell fire. Big trees had been cut through by shell, innumerable branches had been carried away, every telegraph

pole was broken and telegraph wires hung stragglingly. In the fields, where there were not actual signs of fighting, thousands of cans and bottles lay around. There were spent shells, also unspent shells mounted in wicker baskets. In one field a big heap of soldiers' equipment was rotting under sun and rain. Hay ricks were untidy; fodder was scattered about the roadside; there were wrecked wagons in ditches. In place of the trim grassy banks on each side of a well-kept highway there was a bank of soft mud trampled by thousands of hoofs and shoes.

#### Evidences of War

Between the Marne and the Aisne valleys is a 30 to 40-mile stretch of country through which the German armies made their retreat after the Marne battle. This was a deserted country, not destroyed, but scoured clean of food and fodder. Despite the heavy traffic, the main roads had kept in good condition, only the side banks, which are usually trim and neat, had been trampled into a bed of mud.

As the general headquarters were approached at Fere-en-Tardenois conditions changed. Third and fourth class roads had to be used. As heavy rain had fallen, these roads had suffered severely. In most cases there was nothing more than a central track with deep banks of mud on each side. The conditions reminded me particularly of those in the middle west states in America. When another car was met we each went as little into the mud as possible. When a convoy was overtaken the lorries had to be passed one by one, each passage being carried out at the risk of ditching the car.

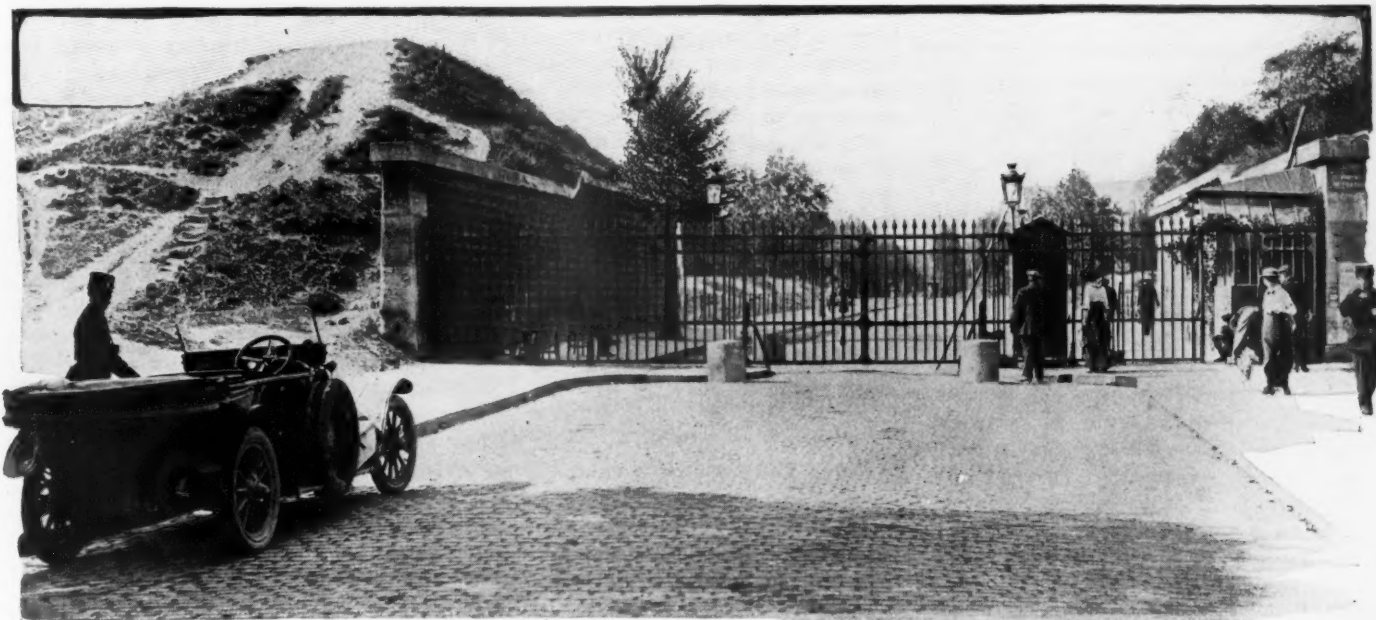
The full extent of the motor transport service in connection with the British army was realized in the village selected by Sir John French as his headquarters. About 2 miles before reaching this village hundreds of horse-drawn army transport wag-

ons were passed in muddy fields. It was very rarely that I saw these vehicles in actual service other than bringing up provisions for themselves. A mile outside of the town motor lorries were lined up in close formation for more than a mile. These were nearly all commercial vehicles which had been taken out of active service at a moment's notice and carried the advertising matter which forms such a distinctive note of this war. These vehicles formed a reserve called upon in rotation to go to the railroad depot a mile to the north of the town and there load up with food and ammunition to be taken direct to the firing line.

Originally the military plan was to make use of motor trucks for carrying supplies from the railhead to a point a couple of miles back of the fighting line, from which point the final distribution was made to the men by horse wagons. This plan has been altered, the motor trucks now going right up to the firing line and delivering direct to the men in the trenches. This system exposes the truck to fire and has caused a few of them to be lost, but the time gained is sufficient justification for its continuance.

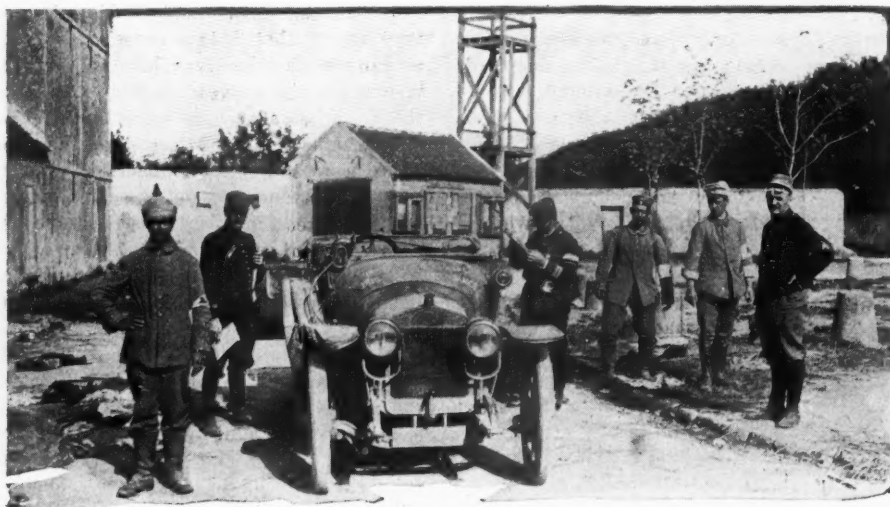
#### British Utilizing Trucks

During the 6 or 7 weeks the war has been in progress the British motor transport service has settled down to business in a remarkable manner and is now giving results which in the opinion of all officers are amazing. The army generally is showing itself highly efficient, but the motor transport service is certainly the best of its many branches. Since the outbreak of hostilities the weaklings and unsuitable types which were pressed into service too hurriedly have been abandoned and have been replaced by new trucks supplied by English factories. Judicious classification also has been indulged in, so that 5-mile-an-hour lorries no longer are made to keep



THE GATES OF PARIS ARE CLOSED NOW, NOBODY BEING ALLOWED IN OR OUT WITHOUT UNDERGOING CLOSE SCRUTINY





A DELAGE CAR AT THE FRONT. THE FRENCH SOLDIERS HAVE AMUSED THEMSELVES BY PUTTING ON GERMAN CAPS

pace with the 12-mile-an-hour machines.

No work is being done away from made roads. The absence of cross country work is made possible by reason of the network of roads in this part of Europe. One of the chief defects of several of the English makes of lorries is the lack of clearance. I noticed several cases of rear axles designed with a view to rapid inspection and quick dismounting, but without any thought that the vehicles might have to operate on mud roads. If the war continues throughout the winter, which is likely, many of these trucks will be incapable of operating on the third and fourth-class roads.

Very useful, if not indispensable, accessories are differential locks and towing hooks front and rear. Despite careful driving, a truck would sometimes get off the road into the mud. As all journeys are made in convoys, it always is possible to get the vehicle out if hooks, a rope and differential lock can be used at once. Without these accessories serious stoppages are to be feared.

#### British Using Gasoline Only

Generally cooling and lubricating systems are proving satisfactory. Up to the present all the motor trucks have used gasoline only. The British army has brought its entire supply from England, either in 2-gallon cans or in big kegs, and never has had to make use of such alternative fuels as benzol and alcohol.

On the public square of the headquarters town there was an even greater scene of motor activity. Here were to be found a couple of hundred motor vehicles of every type. There were motor bicycles, touring cars of all types, motor ambulances, trucks, omnibuses, and a well-equipped motor workshop. A portion of a covered market at one end of the square formed a gasoline and oil depot. Close by was a van stocked with tires and accessories, while in the center of the square was a motor workshop. The equipment of this latter was simple but effective. The vehicle was an ordinary 4-ton chassis

with a big platform body carrying a tarpaulin cover. Inside the body was a twin-cylinder Douglas motorbike motor, generating current for electric lighting and for driving a lathe. Sixteen skilled mechanics were attached to this shop and at the time of my visit were working day and night shifts. A surprisingly extensive range of repair work was undertaken. While the equipment was sufficient to do almost any job, natural discretion was exercised; when the smash was of such a nature that it would unnecessarily tie up the resources of the shop the vehicle was abandoned rather than be repaired.

For every hour spent in the saddle, army officers in these days spend 50 hours in a motor car. Horses are maintained, but with the exception of cavalry officers, it is a rare feature to see an officer on horseback. No particular type of touring car appears to be preferred, although English officers have a liking for a comfortable rather than a very fast car. The machine ought to be able to touch 45 miles an hour with ease and to keep up 40 miles an hour for long periods. My own car is a Darracq of 16 horsepower rating, with no special features, but which does as good service as any other.

The few special features for active service are absolute reliability, a very big range of action and adequate accommodation for tools and spares. In most of the cars the gasoline tanks were too small, for in a war-devastated country it often was necessary to carry sufficient fuel for journeys of 400 to 500 miles. An adequate oil supply also was necessary, and a car which could run very long distances without the bonnet being lifted for renewing the oil had an advantage over others.

#### Changing Tire Under Fire

Spares which are altogether unnecessary in civil life are indispensable for active service, but not many cars had the necessary space for carrying these. Detachable wheels are a valuable acquisition. On one occasion when drawn up for a tire change we were fired on by German stragglers

hiding in the woods behind the allies' lines. The change was made while shots were flying. Under such circumstances there was a wonderful amount of satisfaction in knowing that the change would occupy but a few seconds, for my car was fitted with detachable wire wheels.

An efficient system of lighting is indispensable. Electric lighting appeared to give the best results, but this system requires so little attention that there is a tendency among drivers to give it none at all, with the result that it failed them when needed.

For ambulance work motor cars played just as important a role as in any other section of army activities. At this headquarters town there were a large number of 16-horsepower Wolseleys fitted with light canvas bodies in which were four stretchers on rails. These stretchers were in two rows, with just sufficient room for the attendant to move between the two. These vehicles went close to the firing line, the wounded were picked off the ground by the stretcher men and the stretcher slipped into the van. With its load of four wounded the ambulance returned to the headquarters town, which never was more than 10 miles behind the lines, and there discharged.

In the town in which I was stationed the church was made use of as a hospital, the number of cases treated in this building being 2,000 on 2 successive days. After being given first attention in this temporary hospital, the officers and men were moved back to either permanent hospitals or nursing homes. A large amount of voluntary work was done in this connection.

#### Packards and Fords Used

While at the front I met R. N. Goode, of the Packard company, who was using a Packard car for carrying wounded officers from the front to the American hospital in Paris. The Paris branch of the Ford company gave important assistance in this work. Although these cars are small, they were fitted up according to a French system to carry six men in an inclined position. Light but strong hoops were fitted to the chassis, these hoops carried a waterproof cover, and the stretchers were attached in two rows of three to the hoops with a coil spring connection. Loading and unloading was not so rapid as with the British system, but there was the advantage of being able to carry two more men; further, the spring connections attenuated the road shocks.

After spending most of the day coming from Paris to the headquarters town and in making journeys in and around the headquarters, I was ordered to be in readiness for a night trip to the firing line. At this time the battle of the Aisne was at its height; the Germans had heavily shelled the English position for 2 days and 2 nights in an endeavor to break through before the French could carry out their flanking movement. Thus, as we set out the heavy guns were booming from

the heights dominating the Aisne valley, and on the banks of the river Maxims were at work.

After traveling some distance under headlights, the order was given to extinguish all lights, and we slipped along quietly and cautiously, descended the hill leading into the valley, crossed the pontoon bridge and finally got into touch with the troops for which we were searching. All this northern bank of the river was held by the allies, but the Germans above were strongly opposing their advancement and kept up a heavy fire on them. It was only after considerable loss that the enemy was driven out of his position on the crest of the hills.

When we returned to general headquarters it was 2 a. m. I was then allowed to go off duty. It was raining heavily, I had not been billeted, and the only place to sleep in was the rear of the car. A dozen other drivers were passing the night under similar conditions, our sleep being disturbed by the constant steady rumble of motor trains taking ammunition to the front.

#### German Stragglers Encountered

The following day was spent in carrying officers from point to point along the firing line. Passing down a straight stretch of road our attention was arrested by a group of peasants gesticulating wildly around a wrecked German motor van. As we pulled up they indicated that Germans were to be seen down a lane running through a wood on our left. The car was pulled up opposite the end of the lane, rapid orders were given for the motor to be kept running and the gear kept in engagement ready to slip away as quickly as possible, while rifles were got out. The men could be easily seen creeping along the hedge bottom, but as the officer was of the opinion that they were only stragglers, he fired a few shots and told me to move on. Their presence was reported to French scouts a mile down the road.

Most officers allow their drivers little rest. The order was given one morning to return to Paris, a 4 hours' journey, at high speed. After visiting military officers the order was given at 1 o'clock in the afternoon to drive to the army base, 150 miles to the southwest of Paris. There was no time for a meal, and in place of the usual—or unusual—lunch, I ate sandwiches while driving.

#### Fast Ride Through War Zone

The trip was made in just over 4 hours. After the business had been transacted, dinner eaten and gas taken aboard, a night run was made back to Paris. Only military motor cars are allowed on the roads after nightfall, and even these are stopped at the entrance to all important towns. By the aid of the headlights it was possible to maintain almost as high an average during the night as in the day. On the whole run of 150 miles only one other car was seen on the road, and naturally there were no horse vehicles.

As we approached Paris the control became particularly severe. Down the road the glitter of a bayonet would be seen and the word "Halte" would ring out. It was necessary to pull up sharply, for the sentinels in this part of France are territorial whose guns go off easily. Climbing a winding hill at a rapid clip, I had just made an unsuccessful attempt to avoid running down a cat when I became conscious of a figure dancing a jig in the center of the road ahead of me and pointing a bayonet at the car. It was an inexperienced territorial looking for the most vulnerable part of a car to attack with a bayonet. I relieved him from his embarrassment by pulling up a couple of inches from the end of his steel. Very cautiously he came round to the side of the car and demanded our papers, which were presented and examined in silence.

On the outskirts of Versailles barricades had been put across the road. They consisted of two walls, each one-half the

width of the road, placed on opposite halves and about 10 yards apart. It is possible to zig-zag through them, but utterly impossible to go by at speed. As no lights are employed, it is necessary to keep a sharp look out to avoid running into the barricades. Two days before a group of German spies dressed as English officers had attempted to get into Paris with a motor car at night. They had actually got inside Versailles before their daring attempt was discovered. In consequence of this we were submitted to a searching examination at each post. To add to the difficulties it was discovered that we had been given the wrong password for that night. We were held up at the point of the bayonet while the guard was turned out and officers were brought. Fortunately, among the officers there was a personal friend who understood the mistake and gave us the correct password, with which we could enter deserted Paris at 2 a. m.

#### Motor Truck Convoy Destroyed

At 8 a. m. that morning a start had to be made for the firing line. The trip was made through the forest of Villers-Cotteret, where a day before the French had destroyed a German motor train of sixteen vehicles. The train was entirely loaded with gasoline and was surprised by a body of French dragoons reconnoitering in the forest. By a well-directed shot the driver of the first truck was brought down. Deprived of its guiding hand, the vehicle zigzagged wildly about the road, causing the followers to collide with it. In the confusion of the attack fire broke out and in a few seconds those sixteen trucks were a mass of twisted and broken iron.

Not far from this point we were put on the alert by the appearance of a German motor van. Guns were gotten out and preparations made for an attack, when a voice rang out in English: "You can save your shot." It was some of our own men who had captured the van and were making use of it with the army service corps.



ENGLISH MOTOR TRUCKS GOING THROUGH ONE OF THE MARNE TOWNS WHILE BATTLE IS IN PROGRESS



ONE OF THE BRITISH LORRIES CARRYING ALL ITS ADVERTISING MATTER AT THE FRONT



Motor car captures are rather rare. Whenever the Germans are hard pressed and have to leave their vehicles they generally find time to wreck them. The method usually adopted is to take off the radiator and throw it in the river if there is one near, or carry it away. The allies are almost equally careful not to allow their cars to fall into the hands of the enemy; the result is that the country side is strewn with wrecked cars. When this war is over the work of replacement will be enormous.

From what I have been able to observe, the Germans are making a greater use of motor guns than are the allied forces. When the war broke out the English and French had very few armored cars. The Germans, on the other hand, had large numbers in readiness and certainly have used them with effect. With guns mounted on motor cars the Germans are able to keep up a steady fire until the enemy is almost on them and then get away in safety with the guns.

In a certain measure this inferiority of the allies in the matter of motor guns has been removed since the war broke out. The French army has obtained from the de Dion-Bouton and Schneider factories a special chassis capable of carrying really heavy guns and with such provision that the guns can be fired from the chassis. When the gun goes into action the chassis is stiffened by a series of struts, the nature of which cannot be described.

Coming through a certain town at midnight I was able to appreciate the important role played by motor cars in moving troops rapidly from place to place. In the wide avenue and public square of this town fully 1,000 touring cars and about a couple of hundred motor buses and observation cars were drawn up in orderly lines ready to move a mass of infantry. There was provision for moving 7,000 to 8,000 men at an average speed of 25 miles an hour.

#### MICHIGAN CLAIMS DISALLOWED

Kalamazoo, Mich., Oct. 5.—In the matter of the Michigan Buggy Co., bankrupt, contested claims amounting to approximately \$50,000 have been disallowed by Referee in Bankruptcy Banyon of Benton Harbor. The decision was made at a hearing held here.

#### STUTZ BEARINGS

The United States Ball Bearing Co. points out that its product is used on the 1915 Stutz line, instead of F. & S. bearings, as mentioned in Motor Age's description of the Stutz. The tire size on the 120 and 130-inch wheelbase cars is 34 by 4½. Yellow as a color is confined to the Bearcat model.

#### NATIONAL BOAT-BODY CAR \$2700

The boat-type body model of the National, announced for 1915 in a recent issue of Motor Age, lists at \$2,700, instead of \$2,375, as quoted at the time. The motor is 3¾ by 5½, instead of 3¾ by 5.

## Quaker Judge Points Out Motor Evils

### Hard Raps for Drivers and Pedestrians

PHILADELPHIA, Pa., Oct. 6.—Judge Sulzberger, issuing instructions to the new grand jury today, rebuked the city council for lax motor car laws and handed out some hard raps at careless motorists and pedestrians. He was particularly severe in his arraignment of the council, which he accused of holding up ordinances designed to establish restrictive motor legislation. The discourse to the jurors, which was a comprehensive one, was called forth by the numerous accidents lately.

Among other recommendations, the court vigorously asserted that the owner of a car sitting in the rear of the machine is as much responsible for the injury of a pedestrian in an accident as is the chauffeur, and that the owner should be indicted jointly with the driver. Mayor Blankenburg's recent assertion that the motorcycle was responsible for the greater number of accidents was belittled by Judge Sulzberger, who said the motorcycle was an imitator of the motor car and that the latter was the real danger. Judge Sulzberger's address, in part, was as follows:

It may be that bills will be presented to you charging certain persons with assault and battery, and certain persons with homicide, either manslaughter or murder, based upon what are commonly called accidents, the result of a collision between human beings and motor cars, motorcycles and kindred vehicles. Upon that point there has been a great deal of misunderstanding and confusion, and the rights of the drivers of such vehicles and of the public, respectively, have not been fully understood or appreciated and it is important that you get a correct idea of it.

The rights of the car owners are defined by statute. They have a right to run at a rate of speed not exceeding 20 miles per hour, but they have, nevertheless, the duty of running reasonably, and the reasonableness of their running must be regulated by the councils of the city. If councils do not regulate it, it will be for the grand jury and petit jury to enforce reasonableness of running. The effect of that statute is that between squares a motor car may run 20 miles an hour, and the effect of that is that citizens have no right to cross the street between squares, because if they do they deliberately run themselves into danger. The effect of the act of assembly is practically to prohibit the crossing of streets except at crossings.

When it comes to the crossings, however, crossings are mere extensions of sidewalks, and on sidewalks motor cars have no legal right to run at all. When, therefore, you have presented to you a bill where a person is hurt by a motor car or motorcycle between squares, you will have to look cautiously to determine, before you find that the driver or chauffeur is negligent you will have to look carefully to see whether he was grossly negligent. He has a right, a legal right, to run at that pace between squares, and if a person jumps in front of him, it is always a matter of great delicacy to find out whether any reasonably prudent person could have avoided the collision. In such cases it would be your duty to examine carefully, and unless you were reasonably satisfied that the man could have stopped and avoided the collision you would not be justified in finding a true bill against him for homicide.

On the other hand, when it comes to crossings the position is reversed.

When I say "chauffeur" I do not mean only chauffeur. People blame the chauffeur for this running, but the law is, or ought to be, the essence of common sense. You know, as well as I, that chauffeurs would not be running that way across street crossings if the owner, who sits behind him, did not want it.

Therefore, whenever such an accident occurs, with the chauffeur at the wheel and the owner behind, it will be your duty, if you find the chauffeur guilty, to indict with him the owner who sits behind him and who is presumed in law and common sense and in fact to give the orders that produced the mischief.

We cannot tolerate in this commonwealth the employment of another man to do your killing and then blame it on him.

There are three other leading dangers. One is turning corners; another, turning them short. When men turn a corner the duty which is incumbent upon them at street crossings is really double. There are two street crossings there. They must be slow and deliberate, so that any obstacle that comes in the way may be avoided. The third cause of mischief is the passing of motor cars by motor cars. The man in front goes too slow and the man behind wants to get ahead of him, and goes alongside of him, but, you remember, motor cars run both ways in the street, north and south, east and west, and if you have two, three, four, five or six lines of motor cars at once, where does the foot passenger's chance come in?

The railroad companies and the city are spending millions to do away with grade crossings and yet our city councils have not discovered that there are some thousands of grade crossings in Philadelphia respecting which they have not made the slightest attempt to make regulation.

Motor cars are locomotives on city streets and therefore when a man crosses, he is crossing a grade crossing at every corner. Railroads use all sorts of devices to reduce dangers which in reality are not one-tenth as great as the dangers of our ordinary street crossings.

In order to enable motor cars to run it is absolutely necessary that the people's right to cross the street between the squares be abandoned; on the other hand, it is equally necessary that the right of the people to cross at the street crossings shall be protected.

There is one more danger to which I must allude. This is the recklessness of the use of the word "unavoidable." Every motorist who gets into a scrape like that first convinces himself that the accident was unavoidable and then tries to convince others. He has succeeded in convincing car manufacturers and city councils, but not the courts. Most accidents are avoidable, and all accidents that are the result of habitual carelessness and recklessness and disregard of the rights of others are avoidable.

#### SEPARATOR VETO UPHELD

New York, Oct. 6.—Special telegram—The New York city dealers and garage men, who have been fighting against the gasoline separator, the installation of which is required by an ordinance, were unsuccessful in having the repeal of the separator law passed by the board of aldermen over the mayor's veto. The board voted to repeal early in the summer. This, however, does not mark the end of the fight. In pleading with the board of aldermen not to override the veto of Mayor Mitchel and repeal the ordinance, the fire prevention bureau stipulated that it was perfecting a satisfactory separator that can be installed for less than \$100 and would take no further action until this device was ready for the market. All present devices are declared by the garagemen to be expensive and not satisfactory after installed. As further moves, the repeal may be reattempted or a substitute ordinance may be introduced.

#### VOITURETTE INVENTORY TAKEN

Detroit, Mich., Oct. 7.—Special telegram—An inventory taken by the Detroit Trust Co. shows an appraisal value of \$181,000 for the American Voiturette Co. The assets against the company book an inventory of \$444,000. The direct liabilities total \$295,000 and the indirect liabilities \$213,000. A creditors' meeting will be held tomorrow.



# Star Trio in Dirt Track Century Race

## DePalma, Burman and Mulford Entered at Galesburg

CHICAGO, Oct. 6.—A dirt track race of championship caliber is assured for the Galesburg, Ill., meet, set for Wednesday, October 14, Promoter De Long having signed Bob Burman in the Peugeot, Ralph de Palma in the Mercedes and Ralph Mulford in a Duesenberg. Several other entries have been received and it looks like a field of at least a dozen for the 100-mile race, which will be the only event of the day. De Palma is to drive the Mercedes six which he had at Indianapolis. Since the Memorial day classic de Palma has corrected the faults that he discovered at the time and which caused so much vibration. The car as it was shipped to Indianapolis had a flywheel and clutch designed for touring and not racing. Since then new parts have been put in and the car is said to be as fast as ever. Minneapolis proposes to stage a 100-mile race on October 24.

### TETZLAFF GRAND RAPIDS WINNER

Grand Rapids, Mich., Oct. 6.—Teddy Tetzlaff broke the Comstock park track mile record here Sunday, making it in his Blitzen Benz in :50, the former record being :52%. About 6,000 persons witnessed the speed program offered by Tetzlaff and others in the competition promoted by E. A. Moross. A number of local drivers participated, the results being as follows:

Special 3-mile for Grand Rapids drivers—Frank White, Packard, won; M. Vandenberg, Buick, second; W. Calrow, Mercedes, third; time, 3:29%.

Three-mile race, 450 inches and under—Tetzlaff, Maxwell, won; Kennedy, Burman, second; Callaghan, Keeton, third; time, 3:09.

Three-mile open, non-stock, 450 class—Tetzlaff, Maxwell, won; Kennedy, Burman special, second; Callaghan, Keeton, third; time, 3:08%.

Free-for-all open race, three heats of three miles each—First heat: Carlson, Maxwell, won; Tetzlaff, Maxwell, second; Kennedy, Burman, third; time, 2:59%; second heat, Callaghan, Keeton, won; Kennedy, second; Tetzlaff, third; time, 2:50%; third heat, Carlson, won; Tetzlaff, second; Kennedy, third; time, 2:44%.

To lower track record of :52%—Tetzlaff, Blitzen Benz; time, :50.

Fifty-mile free-for-all—Tetzlaff, Maxwell, won; Callaghan, Keeton, second; Tidmarsh, Great Western, third; time, 52:36.

### DIRT TRACK MARKS LOWERED

Oklahoma City, Okla., Oct. 4.—Two new ½-mile dirt track records were made here yesterday. Eddie Hearne lowered Burman's record of 5:55% for 5 miles, going the distance in 5:47, and John Raimey cut Burman's record for 3 miles from 3:32% to 3:25%. On October 2 Louis Disbrow established a new ½-mile dirt track record when he drove 2 miles in 2:13% or ¾ second better than the record made by him at Toledo, O., last June.

### DE PALMA SHINES AT TRENTON

Trenton, N. J., Oct. 2.—Ralph de Palma in a Mercedes carried off first money in each of the three races in which he was entered at the Trenton fair grounds today. It was getaway day and a series of six

motor car events ranging from 5 to 25 miles were the stellar attractions. While the finishes were close, de Palma never was in difficulty.

A series of accidents further added to the thrills of the day. In the last event on the card, a 25-mile free-for-all, the Baby Chevrolet driven by Jack Lecain, of Boston, cracked an axle and crashed into the fence. No one was injured. In the twenty-third lap of the same event the car of Grover C. Bergdoll, of Philadelphia, caught fire and was badly crippled. Bergdoll and his mechanic, however, were not hurt.

Up until this interruption the event had proven the most interesting of the day, Morton in a Mercer Special overtaking Bergdoll in an Erwin 40 in the last few laps, the latter having led from the start. The summaries:

Five miles, non-stock cars, 161-230 class—J. Lecain, Baby Chevrolet, won; time, 6:32%; M. Roberts, Roberts Special, 6:37, second; G. C. Jessup, Chevrolet, third.

Ten miles, non-stock, 300 inches and under—Ralph de Palma, Mercedes, won; time, 13:05%; J. Lecain, Baby Chevrolet, 13:24, second; G. C. Jessup, Chevrolet, 13:31, third.

Five miles, non-stock, class E, 450 cubic inches and under—Ralph de Palma, Mercedes, won; time, 6:35; G. C. Bergdoll, Erwin 40, second; time 6:36; M. Roberts, Roberts Special, third; time, 6:37.

Ten miles, non-stock, class D, free-for-all—Ralph de Palma, Mercedes, won; time, 12:39%; G. C. Bergdoll, Erwin 40, second; time, 12:42; R. N. Brown, Isotta, third; time, 12:54.

Ten miles, class E, free-for-all handicap—J. Lecain, Baby Chevrolet, 10 seconds, won; time, 13:00%; G. C. Bergdoll, Erwin 40, second; time, 13:22%; M. Roberts, Roberts Special 30 seconds, third; time, 13:23.

Twenty-five miles, class E, free-for-all—W. D. Morton, Mercer Special, won; time, 30:50%; G. C. Bergdoll, Erwin 40, second; J. Lecain, Baby Chevrolet, third.

### EXPORTS FOR AUGUST

Washington, D. C., Oct. 6.—Special telegram—Figures issued today by the bureau of statistics show exports of sixty-six commercial cars valued at \$124,016; 385 pleasure cars valued at \$441,879, and parts valued at \$196,527. In August last, in the same month last year, these exports were: Commercial cars, sixty-eight; value, \$109,437; pleasure cars, 1,936; value, \$1,874,312; parts, value, \$454,881. During the 8 months ending August, 1914, the exports of commercial cars amounted to 509, valued at \$772,257; pleasure cars, 18,884; valued at \$16,612,060; parts, \$4,107,545. During the same period last year, the figures were: Commercial cars, 730; value, \$1,260,086; pleasure cars, \$84,864,396; parts, \$3,985,658.

Tire exports in August last were valued at \$188,002, as against \$377,031 in August a year ago.

### WALPOLE REPORTS EARNINGS

Boston, Mass., Oct. 3.—There were sixty present at the meeting of the Walpole Tire and Rubber Co. stockholders. Judge Harris, one of the receivers, in the course of outlining general conditions with the com-

pany, stated that there are about 800 stockholders, of whom 241 are women. He stated that the Walpole company earned \$30,000 in August and for no month less than \$20,000, since the receiver took charge. In 6 months \$160,000 was paid off to creditors.

Auditor Keith stated that from January 31 to June 30 of this year the company earned \$125,000 and that with one exception all the departments were now on good-paying basis. The good-will item had been marked down from \$800,000 to \$250,000. The sum of \$422,000 has been paid out since the receivership, including \$60,000 to the Traders Bank. Counsel Metzler stated that including the subsidiary company profits, average earnings had been \$30,000 a month. The indebtedness of \$1,100,000 has been reduced to \$250,000. The company has about \$750,000 quick assets.

### MARION COMPANY IN COURT

Indianapolis, Ind., Oct. 6.—The Standard Brass Foundry has brought suit in the superior court here against the Marion Motor Car Co. and James I. Handley, asking for a judgment of \$4,000, the appointment of a receiver and a restraining order to prevent the directors from disposing of any part of the assets of the company to Handley.

The complaint alleges that on September 28 the directors notified the plaintiff Handley's bid of \$71,375 had been accepted for the assets. It is alleged the manner in which the sale was put through was unfair, unlawful and fraudulent.

A hearing in the matter is to be had October 12.

### OPPOSE U. S. L. SALE

Buffalo, N. Y., Oct. 6.—Special telegram—A motion asking Judge Hazel to issue a decree ordering the sale of the plants and property owned by the United States Light and Heating Co., against which creditors filed a petition in July and for which receivers were appointed, was made late today here in the United States district court. The motion was made by Attorney Albert Stickney, representing the Central Trust Co. of New York city. Stickney said he understood the Equitable Trust Co., also of New York, favored the motion, although this concern was not represented in court. This motion immediately was opposed by James O. Moore, one of the receivers for the corporation. Moore stated the liabilities of the company are not more than \$754,602, while the assets are more than \$2,500,000. Louis Posner, of the law firm of Dos Passo Bros., representing the defendants in the proceedings brought against them, also vigorously disapproved the granting of such a motion authorizing the sale of property, stock and interests throughout the country of the United States Light and Heating Co. Judge Hazel granted a motion asking that creditors other than the two original complainants be admitted as parties to the action.

# Ford's Profit-Sharing Scheme for Employes Explained

## Advertising Men Are Told How Plan Is Working Out

**D**ETROIT, Mich., Oct. 2.—In an address before the members of the Associated Advertising Clubs of America here today, John R. Lee, in charge of the sociological work of the Ford Motor Co., submitted evidence to prove that the profit-sharing plan, put into operation at the Ford plant last February, was most practical and a benefit to employer and employe alike.

"The profit-sharing plan was not inaugurated or put into operation as a business expedient," Mr. Lee said. "The aim of the Ford company was to better the financial and moral condition of each employe and those dependent upon them. The money that is paid employes under the profit-sharing plan comes to them regularly in their pay envelopes to be used in acquiring American ways and methods of doing business, strength of manhood, loyalty and improvement in their conduct of self as citizens of the United States.

"The statement generally made that the minimum wage at the Ford plant is \$5 a day is not correct. The Ford Motor Co. pays for 8 hours' work approximately 5 per cent more than the employes would receive at any other shop for 10 hours' labor. It then adds to that amount enough to make up the \$5. Those men in the factory who are getting up to and including 38 cents an hour come under the \$5 class. Those getting from 38 cents up to and including 48 cents, receive \$6 per day; those receiving 48 cents an hour or over, get \$7 a day. On this basis, for example, a man who receives \$2.75 as wages also gets \$2.25 as his share of the profits.

"We make a sharp distinction between the amount of wages and profits in order that the benefits of the plan may be safely, sanely and positively appreciated in each individual case.

"In the operation of the plan, we are finding many cases where it is necessary for the general good to withhold profits from some of the men, and in many cases to take away from them all of the profits already granted until they can fully realize the accruing advantage. In order that the facts above stated can be fully understood, I would say that up to date we have recovered the sum of \$7,000 paid employes who obtained their profits under false conditions or were using them in some way detrimental to themselves or others.

"The figures showed that after the first investigation, taken about February 1, 60 per cent of the men were receiving profits, because they seemed from the records to embody the necessary qualities to receive and use the money under the plan according to the purposes of it. We have just completed the September 1 investigation, and this percentage has grown from 60 to 82½ per cent of the total force. The other 17½ per cent represent the ineligible, or

men who were, are still working upon, but up to the present time are not qualified to receive the money.

"It is a well known fact, generally speaking, that there is always more or less of a breach between employer and employe, and value of service is much at variance, so that very few of the concerns throughout the country can get even a fair proportion of the efficiency which a man is capable of. In the month of February, 1913, with 16,000 men working 10 hours a day, we built and shipped 16,000 cars. In the succeeding February, after the profit-sharing plan had been in operation 7 weeks, with 200 men fewer, working 2 hours a day less, we built and shipped 26,000 cars. It is true that the giving of a portion of the profits to each individual qualified is not entirely responsible for this increase. Much is attributed to improved methods. Of the 44 per cent increase, 25 per cent is the proper amount to credit to the men.

"On August 1, or about 6½ months after the plan was inaugurated, a gain is shown in the bank accounts of our employes of 30 per cent; in the amount of life insurance, 86 per cent; homes bought and paid for, 87 per cent; lots bought and paid for, 86 per cent; homes bought on contract, 75 per cent; lots bought on contract, 135 per cent, and payments made on contracts for lots, 145 per cent; amount of rent per month, 12 per cent; amount of board per month, 11 per cent. These last two figures are interesting, inasmuch as they show that the men have moved out of squalid quarters into neighborhoods where conditions were better.

"We notice throughout the plant a desire on the part of the men to save time and labor for their employer, and we are enabled to better protect them by concentrated effort on the part of the worker.

"Punctuality and regularity of attendance is present to a surprising degree, and this has solved many, many problems that were more or less vexatious in our various departments. Spoiled work has greatly decreased, and our medical department tells us that our men, as a whole, have gained in health since January.

"We are quite convinced from facts in hand that in trying to help our men in their struggle for a living, we have been more than benefitted."

### DETROITER'S PRICE REDUCED

Detroit, Mich., Oct. 5.—Since the first day of this month the price of the Detroit cars has been reduced from \$1,050 to \$985. All purchasers of 1915 cars since August 1 are requested to call at the dealer or distributor from whom they purchased their cars and each will be given a cash rebate of \$65. This price reduction

was expected by the dealers, inasmuch as at the annual convention held in July, President C. S. Briggs stated that the price of the 1915 model will be reduced as soon as the production had reached twice the number of cars made during a specified number of months in 1914 than made during those months of 1913. At the lower price the Detroiters will be sold with exactly the same equipment and accessories as heretofore at the higher price.

### PREDICTS LOWER RUBBER PRICES

Detroit, Mich., Oct. 3.—Speaking about the present conditions of the crude rubber and tire business, Vice-President A. A. Templeton, of the United States Tire Co., said that it is his opinion that before very long it will be possible to buy rubber at 50 cents, the present price being 58 cents. The time also will come when the price, he thinks, will be about 25 cents, but, of course, we will have to wait a while yet.

"This big price reduction will be forthcoming because rubber now is being cultivated on a very large scale in far eastern countries and this is much cheaper than the method of getting the rubber from the rubber forests in South America," says Templeton. "If the plantation returns are as satisfactory as experts who are watching their progress report, there will be a great change in the rubber industry within the next few years.

"One of the principal reasons why the advance of 12 to 20 per cent on tires was not maintained is due to the fact that neither Germany nor France nor other European countries which imported large quantities of rubber, or rather the raw material, are receiving any, and, the other reason is that shipping conditions are such that the raw material is reaching this country in sufficient quantities to allow the selling of tires at the old prices."

### U. S. DROPS TIRE PRICES

New York, Oct. 6.—Not only have tire prices reached the level from which they ascended at the outbreak of the European war, but one reduction has been made. The United States Tire Co. has made reductions in its chain-tread casings, ranging from about 4 to 15 per cent. This is a reduction from the before-the-war list and the cut is larger on the smaller sizes. The 32 by 3½ is dropped from \$27.40 to \$20.10 and the 36 by 4½ from \$49.35 to \$42.

These prices went into effect and at the same time the United States returned in all other cases to its before-the-war list. When tires started downward, following their rapid ascent, United States, Goodrich and Diamond, Republic and Fisk, went back to their old dealers' discounts but kept the higher list. But inasmuch as the



list is seldom adhered to by dealers, anyway, the maintenance of the list was considered largely theoretical.

October 1, when the United States returned to the old list, Goodrich and Diamond did likewise, and the day following, October 2, the Fisk Rubber Co. also went back to the old list. The Republic Rubber Co. is still at the higher list but its dealers' prices are normal.

Crude rubber, which was 55 cents and 57 cents a pound before the war sent it to about \$1.10, has returned to about 65 cents, but there is little buying. Some deliveries are being made, both of para and Brazilian, but manufacturers seem to be holding off for fear the bottom price has not yet been reached.

### TREGO JOINS KNOX FORCES

New York, Oct. 5—Frank H. Trego, who since September, 1912, has been connected with the research engineering department of the Packard Motor Car Co., has become assistant general manager of the Knox Motors Co., Springfield, Mass., assuming this post on October 1. Mr. Trego has had a long connection with the motor industry, his factory experience dating from 1909, when he was one of the engineers with the Hudson company when its model 20 was placed on the market. After this Mr. Trego became chief engineer of the Thomas Motor Car Co., Buffalo, and 2 years ago installed the department of research in the engineering department of the Packard company. During the last 2 years his efforts have been spent in the development of the present Packard motors.

### MAY PROBE POSTAL TRUCK DEAL

Washington, D. C., Oct. 5—That the action of the postmaster-general in awarding to the White company, of Cleveland, a contract for furnishing the Washington city postoffice with seven motor trucks, will be the subject of a congressional inquiry is indicated by a resolution introduced by Senator Townsend, of Michigan. Several bidders who submitted the propositions have made protests against the awarding of the contract to White company, and have brought congressional influence to bear to ascertain certain facts from the postmaster-general regarding the awarding of this contract. It is understood Senator Townsend is going to press his resolution and to that end is likely to deliver a strong speech in the senate on the subject in order to force the democrats to pass the resolution.

### WEAK SPOTS IN GARAGE LAW

Boston, Mass., Oct. 3—When the new garage law went into effect last Thursday it was found there were some defects in it, and right away an effort was started to secure modifications of the law. This may be done by the fire hazard commissioner who has the power to make or suspend rules and regulations. John O'Keefe, of

Lynn, Mass., has just been appointed to the position and the representatives of the electric vehicle associations got busy right away and asked for a hearing on the regulation that prohibited the use of electricity in garages to some extent. It seemed at first as if there could be no storing of electric and gasoline vehicles in any garage, and this was pointed out as a hardship to the owners of garages and the electric vehicle industry as well.

The hitch in the law came over the regulations governing electricity which would exclude charging stations in garages where gasoline vehicles were cared for. So an application was made to Commissioner O'Keefe on behalf of the Electric Vehicle Association and the Electric Motor Car Club. He gave a hearing on the matter at the state house during the week.

Commissioner O'Keefe expressed himself as highly pleased with the method adopted by the electric interests in presenting the matter and he stated that he would weigh carefully all of the arguments and adopt rules that while protecting the community against undue fire hazard nevertheless would not interfere with the proper conduct of business. The electric men left the hearing satisfied that changes will be made along the lines they suggested.

### MISSOURI FAIR SHOW A WINNER

Sedalia, Mo., Oct. 3—Eighteen different makes of passenger cars were shown in the motor show at the Missouri state fair, which closed here yesterday. The exhibits were mostly by Kansas City firms and reports are that the fair business was exceptionally good. The car salesman here explained that Missouri is unusually prosperous this year. A huge corn crop is in the making and the wheat yield was one of the largest in the history of the state. With the exception of a few districts in central and eastern Missouri, the recent dry weather caused little harm to the growing crops.

That Missouri is rapidly becoming a motor state was shown by the attendance at the fair. On Thursday more than 2,000 pleasure cars were packed in the grounds. Practically all these toured to Sedalia from points as far distant as 100 miles. The state fair last summer marked nearly 300 miles of roads leading into Sedalia.

### WEED GRANTED INJUNCTION

New York, Oct. 5—The Parsons Non-Skid Co., Ltd., and the Weed Chain Tire Grip Co. have been granted a perpetual injunction in their suit against the Leather Tire Goods Co., Inc., in which they alleged infringement of patent No. 723299. Judge Hough handed down the final decree in the United States district court for the southern district of New York, ruling that the Leather Tire Goods Co. had infringed patent No. 723299 covering the Weed tire chain construction. The injunction prohibits the manufacture or sale of any infringing devices and in particular the Side Chain Kant Skids made by the Leather Tire Goods Co.

### AFTER CONFLICTING LAWS

Indianapolis, Ind., Oct. 5—Attorneys who have been conducting a quiet investigation have found that in many municipalities throughout the state ordinances have been enacted that conflict with the state motor law. It is expected that a series of test cases will be brought, with a view to having declared invalid many ordinances that are obnoxious.

There is a specific provision in the state law that no municipality shall enact an ordinance that conflicts with the state law. In spite of this fact numerous traffic measures have been adopted and ordinances have been passed attempting to fix speed limits lower than those permitted by the state.

The question also probably will be raised that it is unlawful to tax motor cars as personal property.

## Rayfielded Overland in Fuel Test

### Model 80 Does 24.2 Miles to the Gallon

CHICAGO, Oct. 3—Under the supervision of F. E. Edwards, chairman of the technical committee of the Chicago Automobile Club, the Findeisen & Kropf Mfg. Co., of this city, manufacturer of the Rayfield carbureter, held a test last Thursday that brought out officially the merits of the model G Rayfield carbureter in the way of economy, acceleration, low throttling, speed and hill-climbing without any change in adjustment.

The car used was a 1915 model 80 Overland four-cylinder, 4½ by 4½, and weighing 3,620 pounds, carrying four persons. Charles Merz, former race driver, was the pilot, and besides Mr. Edwards the car carried S. D. Hirschl, chairman of the technical committee of the Chicago Motor

Club, and E. A. Rossow, manager of the Chicago Rayfield branch.

On 1 gallon of 58 Standard Oil gasoline the car ran 24.2 miles. In the way of acceleration a speed of 30 miles an hour from a standing start was attained in 12½ seconds. Then the Overland throttled to 3 miles an hour on high and quickly accelerated to 42 miles per hour. On Hubbard's hill, about the only grade about Chicago suitable for such tests, the Overland went from a standing start to a speed of 18 miles per hour on high at the top. The next hill trial was from a flying start and the speed of 12 miles per hour at the bottom was increased to 18 at the top. The test was made in the vicinity of Chicago.

# Dollar Wheat and Good Roads Make Kansas a Motor Stronghold

STATE LINE BETWEEN COLORADO AND KANSAS



KANSANS LINED UP FOR WHITE TOUR TO COLORADO

IT USED to be that Kansas was noted for its hayseeds; and Kansas cattle men, chaperoning their scrub steers to the stockyards, would lie that they were from I-wa.

Kansas had a humor-suggesting sound that went well over the footlights, in joke papers and when conversation lagged.

Everybody handled Kansas as the trusts are supposed to treat the common people—they kicked it and jumped on it, laughed at it and rubbed it full of dust.

## Kansas' Turn to Laugh

But Kansas came back! It is laughing last!

It was the motor car which brought Kansas on to the map and twisted the smile of derision into an admiring gasp. There are hayseeds flying in the Kansas winds today—but they all have the smell of the garage.

Charles Sessions, secretary of state, of Kansas, says there is an average of one motor car for each forty-six persons in the state or an average of one car to every eighth family. The number of cars has increased so rapidly during the past 2 years that one wonders where they all go. The increase in the number of motor cars in Kansas is as follows: 1911, 14,465; 1912, 18,626; 1913, 26,247; 1914, 41,442.

Out in the Great American desert, as the western part of the state was once called—the short grass country—where people, who are not from the Sunflower state, say they raise nothing but sand-burrs, and grass-hoppers, the motor cars are thickest. In some of

## By M. D. McNaughton

these counties there is a car to almost every fourth family.

Edwards county is the prize motor county of the state. It has one motor car to every twenty-one persons within its borders. Stafford, Pawnee, Reno, Ottawa, Rice, Pratt, Cloud, and Commanche counties all have cars for every fifth family.

Next to gasoline, rain is in keenest demand in Kansas. When they get rain they can get gasoline and when they don't they have to mortgage the homestead to keep their car. But lately rain has brought cars and gasoline, bank accounts, and good roads to that state that made the sunflower famous and the alchemy of rain has turned the sunflower into a diamond stud.

Everybody in Kansas talks of motor cars as old and intimate friends. Everything is running in Kansas from gasoline

velocipedes to immense White good roads trucks, including at least twenty old steamers, which are still on the job, they started 10 years ago.

Officials of the Kansas City Motor Car Dealers' Association just completed a motor tour of some of the most prosperous counties in the state in order to ascertain the business conditions. They found Kansas motor-mad.

## Big Business Predicted

Dollar wheat and perfect maintenance of the roads of the state are responsible. In the opinion of twenty-four motor car dealers in Hutchinson, Emporia, Newton, McPherson, Salina, Abilene, Junction City, Manhattan, Topeka, Lawrence, and Leavenworth, 20,000 motor cars will be sold in Kansas before May 1, 1915. This number seems astounding but when it is remembered that every motor car dealer in the state is behind in orders for cars he cannot deliver and the splendid financial conditions of the entire state on account of the unprecedented harvest, it is not to be wondered at.

Three times the amount of gasoline is now burned in Kansas as compared with the amount in 1907. Frank Comiskey, state oil inspector, is responsible for the statement that 20,906,550 gallons of gasoline were consumed in the state between July, 1913, and July, 1914.

Figures compiled in the motor car registration department for the secretary of the state of Kansas, show that \$18,000 per month is being spent



A SANTA FE TRAIL MARKER



for motor cars. Last January, which was only an average month, 373 new cars and 141 old cars were bought by Kansans.

In a talk with Curtis Meyers, chief of the license bureau, a short time ago, he said that the average cost of the motor cars sold in Kansas was \$1,000. He said the value of the cars in Kansas now is \$42,000,000.

Indications show that more high-priced motor cars will be sold in the state during the coming year than ever before. The farmers have money and they want the best. S. W. Forrester, a motor car dealer at Manhattan, who is a fair judge of the industry, said many Kansas farmers were not even considering motor cars costing under \$1,000.

Kansas has roads that make motoring a delight. Natural roads, they are dragged after rains and supervised in every township so they offer the inducement to the man at the wheel to speed at every stretch. And these stretches of road in Kansas extend across the entire state and up hill into Denver.

There has been more cross-state traveling by motor cars in Kansas this year than ever before. Parties of two, three, and four cars, with Colorado or Missouri license tags were frequent sights this summer. An average of one car passed every 15 minutes on the Santa Fe trail. This is taking into consideration only those cars that completely crossed the state.

In addition to this cross-state travel many pleasure tours have been promoted by various enthusiasts in the state. A wonderful example of the pleasures of Kansas touring is the White-Colorado-tour that was organized by the local White dealer at Manhattan. This tour was composed of seventeen White cars carrying complete camping outfits and all bent on pleasure. The tour lasted 2 weeks with easy mileage each day and took the route of the Golden Belt to Denver, viewed Estes park, Lookout mountain, Colorado Springs, Manitou, Cripple Creek, Victor, Garden of the Gods, Cave of the Winds, Seven Falls, Canon City, Royal Gorge, Sky-line Drive, and Pueblo, and returned over the Santa Fe trail.

#### Co-operative Motor Touring

History never repeats itself but it says more or less the same thing in other words. Kansas showed the world a new way to enjoy life and taste the pleasures of two kinds of outings at the same time. They introduced co-operative motor touring.

This gives the wise tourist the chance to see the grandeur of Colorado from the leather luxury of their modern prairie schooners, to enjoy the primitive pleasure of camping under an army blanket in the crisp night air of the Kansas prairies, lulled to sleep by the howls of the far-off coyotes.

It gives a tang to recreation and makes work and the routine of business a keener



A FAMILIAR SCENE NEAR COLORADO SPRINGS

delight after it is over than any 2 weeks of fishing over the edge of a rowboat or riding a dusty Pullman.

There are three great routes across Kansas that are opening the eyes of those who have toured afar and causing enthusiastic talk in places where motorists congregate.

These three magnificent stretches of roadway will some day be as famous as their history-making predecessor, the old Santa Fe trail. It is along this trail that heavily-freighted and slowly-moving canvas-covered wagons crawled their toilsome way toward the setting sun and hoped for wealth in distant California.

#### Old Route Well Marked

That same old route, marked every 20 miles today by tablets erected by the Daughters of the American Revolution and red, white, and blue stripings on all of the posts along the line, is a motor highway across the southern part of the state. The Santa Fe trail leads from St. Louis and Kansas City and ends at Santa Fe, New Mexico, other roads leading from Santa Fe to the coast cities of California.

For the motorist wishing to tour Colo-

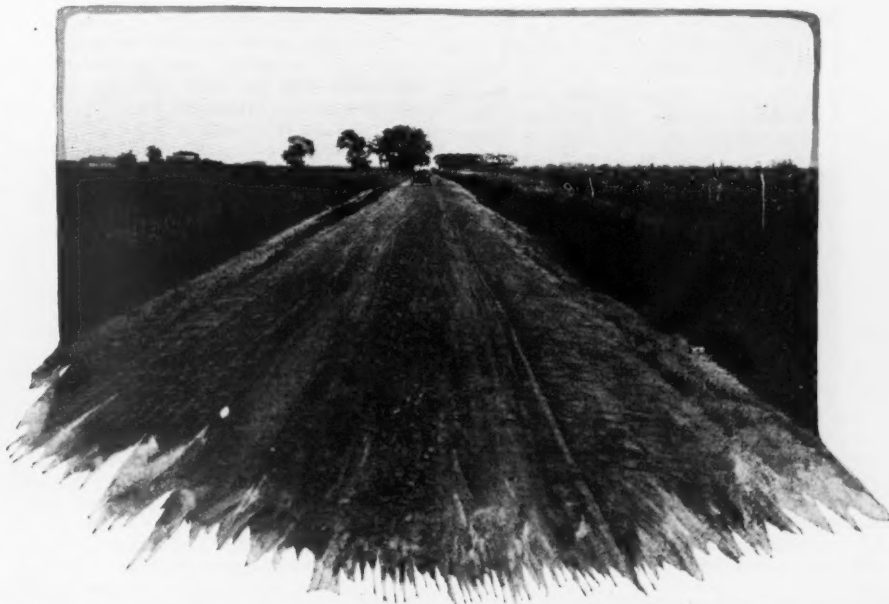
rado, however, the Santa Fe trail is left at La Junta, Colo., 50 miles from Pueblo and the Colorado state road is traversed. This road with a macadam-like surface leads from La Junta to Pueblo, Canon City, Colorado Springs, Denver, and practically all points of interest in Colorado. Nearly all of the way from Kansas City to La Junta the trail follows the tracks of the Santa Fe railroad.

#### Central Route Popular

There is a central route—a newer road but fast becoming as good and also as famous with motorists as the old Santa Fe trail—which leads from Kansas City to Manhattan and Abilene and across the state to Denver. This is the Golden Belt road. Its way is marked by signs and yellow bands on the posts along its borders. Practically across the entire state this road follows the line of the Union Pacific. In western Kansas at Oakley it turns north to Colby and from there follows the Rock Island into Denver.

A roadway across the state still farther to the north is the Pike's Peak route. This is the newest of the trunk line roads and runs directly across the state from St. Joseph, Mo., to Denver. It is marked by white stripes on the posts and at every turn are signs showing the direction of the road and the name of the roadway—"Pike's Peak Route—St. Joseph to Denver."

The Santa Fe trail was worn smooth before the pioneers began to develop the Kansas country. Roads are the first mark of commerce. Where roads are made the people will settle. When settlement became denser, the wide grazing country to the south and the salt region of Hutchinson sprang into notice and the varied industries settled where prospects were most favorable. Important towns sprang up south of the Santa Fe trail and to tie such towns as Emporia, Hutchinson, New-



NEW SANTA FE TRAIL. NEAR HUTCHINSON, KAN.

ton, and Ottawa to the main highway a branch known as the new Santa Fe trail shunts off at Olathe in east central Kansas, parallels the old trail 30 miles south half way across the state and comes back again at Lyons.

The roadways are kept level and are well made. The excellent attention the roads receive makes mud merely an un-

sightly incident—mud holes are scarcely known. The dust is there in the hot weather, as the dust is in Indiana and Ohio and Iowa—no worse.

You can't lose your way in Kansas. Everybody knows his Blue Book. The German army system with its charted localities hasn't anything in efficiency to show to the Kansas farmer in keeping up

the trunk line road that passes his farm. If the roads were not marked so wonderfully you could not get lost—you can smell the road by the odor of gasoline.

But there is no need of road guides across the state. Every corner is labeled, every turn has its sign, everywhere it is on—"On to Denver," "156 Miles to Kansas City," on to progression.

## Route Information for Motor Age Readers Who Tour

### Improving Southwestern Roads

**TOPEKA, Kan.**—Editor Motor Age—Branching off from the Santa Fe trail at Florence, Kan., the tourist from St. Louis or Kansas City will be able, in the near future, to travel in almost a direct line south to the gulf over the best of roads, and through a country that will have many points of interest almost all the way. For this splendid opportunity he will have to thank the Oklahoma, Texas and Gulf Highway Association, through whose efforts the tour will have been made possible. These men are taking the first step in building a network of good roads in every direction all over the state.

From the time the road enters the state at Chillico, to where it crossed the Red river into Texas north of Denison, a more scenic and more interesting route would be hard to imagine. Throughout the entire length of the road are places and institutions comprising every line of activity in the state, and they can be observed almost without leaving the main road.

First, in coming from the north is the Indian school at Chillico. Here is located one of the finest technical schools of the country built for the instruction of the Indian youth. At Chillico may be seen also the great quarries where a very high grade of crystallized limestone is being taken out. The road from Newkirk to Ponca City passes through one of the biggest and latest developed oil sections of the state. Here may be seen the oil industry in all its stages: the drills, derricks, pumping stations, storage tanks, and wells themselves. This is certain to claim a large share of interest from tourists to whom this particular phase of industry is new.

Hardly are the smoke and derricks of the oil fields left behind, when 101 ranch, at Bliss, will be seen. This is one of the largest and oldest of Oklahoma ranches. Among other items of interest at this place is a herd of buffalo, whose rareness alone will make them of great interest through all future time.

From 101 ranch down through the famous strip around Perry, the road comes to Guthrie, the old state capital. Here is located the Oklahoma Methodist university, the representative Methodist school of the state. And here is also located the recently installed municipal bathhouses, said to be the only institution of its kind in the United States. Guthrie has also recently developed a good grade of mineral water. Another institution of learning, the Central State Normal, is found at Edmond, 15 miles south.

Oklahoma City, the capital of the state, is the next point of interest along the line. At Norman, 20 miles south of Oklahoma City, is the state university. This institution can hold its head well up with any state university in the country. The ample campus has been laid out like a great park, and this, with the artistic buildings and the excellent athletic field, make it a place worth visiting.

In crossing the South Canadian river, between Lexington and Purcell, tourists will have the opportunity of viewing the most erratic river in the world. Most of the time its wide bed is nearly devoid of water. But

it is stated reliably by men who have lived for years along its banks that on a perfectly clear day, with no evidences of recent rain, a 3-foot wave, from bank to bank of the stream will suddenly swoop down, raising a cloud of dust sometimes 200 feet in the air. Owing to the violent and treacherous nature of the stream, special precautions had to be used in the construction of the bridge over which the road will run.

From Oklahoma City south through Purcell and Pauls valley, the road will encounter a section of farming country equal to almost any in the United States where a first-hand view of Oklahoma agriculture may be had. This farming territory gradually becomes lost in the wild, primeval scenery of the Arbuckle mountains. At Davis, it is entirely likely that a spur of the road will be built which will open up a mountain country as grand as the Rockies, but on a smaller scale. There are wooded mountains with immense unexplored cavern, steep precipices and canyons and beautiful Turner Falls, where a large stream of water issues from between perpendicular cliffs 75 feet in height and falls into a deep pool 50 feet below.

At a short distance from Davis is Sulphur Springs, with its mineral water, and the Platt national park. Here are summer resort hotels and baths, nearly 600 acres of rugged country which has been converted into one vast park, with many alluring features.

The road then winds through 35 miles of rugged, picturesque, heavily-wooded hills, and emerges into another farming section. In the heart of this section is Durant, where is located the Southeastern Normal school. South from Durant it is a comparatively short reach to the Texas line, where the road crosses the Red river, and leads to Denison, Tex. The greater portion of the road in Texas has been completed, running south through Dallas to the gulf.

The whole system, from the time the road leaves the Santa Fe trail at Florence, Kan., will probably be completed before the end of the year. Plans are developing rapidly to make an international highway into Canada from this road system and its connection with other roads north of Kansas City. And it is expected that this international highway, the only one of its kind running north and south through the United States, will see completion inside of the next 5 years.—Oklahoma Enthusiast.

### Marking Canadian Trails

**Winnipeg, Ont.**—Editor Motor Age—For the benefit of American motorists coming into Canada by way of Emerson, instructions for following the recently posted color route are given. These color signs are placed on the telephone poles and consist of metal bands with baked enamel colors so that they are very distinct and practically indestructible.

**ALL RED**—Starts corner Main and Portage. Route to Regina by Portage la Prairie, Brandon, Virden and Elkhorn.

**ALL BLUE**—Starts corner Maryland Street. Route to Brandon by Starbuck, Elm Creek, Treherne, Glenboro, etc.

**RED AND WHITE**—Starts southwest corner Main and Portage. Route to Gulf of Mexico by way of Emerson, Grand Forks, etc.

**BLACK AND WHITE**—Starts corner Logan and Main. Route to Winnipeg Beach by way of Stonewall, Balmoral and Teulon.

**GREEN AND WHITE**—Brandon to Neepawa and Brandon to Souris.

**BLACK AND RED**—Brandon to Clear Lake.

**GREEN**—Stonewall to Oak Point.

**YELLOW AND BLACK**—Carman to Bois-sevain.

When a white R is shown on color band it denotes turn right. When a white L is shown on color band it denotes turn left. When color band only is shown with no letter keep straight ahead.—A. C. Emmet.

### Youngstown, O.—St. Petersburg, Fla.

**Youngstown, O.**—Editor Motor Age—What is the best and most direct route to St. Petersburg, Fla. What is the distance and road conditions.—G. W. Clayberger.

Go first to Pittsburgh via New Middletown, Darlington, Beaver Falls, Rochester, Ambbridge, Sewickley and Glenfield, then over a very good road through Wilkensburg, Adamsburg, Greensburg, Ligonier, Stoyestown, Katner, Schellburg, Bedford, and 68 miles to Hagerstown through Everett, McConnellsburg, Mercersburg, Upton and Greencastle.

From Hagerstown to Staunton, W. Va., is a run through Williamsport, Martinsburg, Bunker Hill, Winchester, Stephens City, Middletown, Strasburg, Maurertown, Woodstock, Edinburg, Mount Jackson, New Market, Lacey Springs, Harrisonburg, Mount Crawford, Burkstown, Mount Sidney and Staunton. Continue south through Minte Springs, Greenville, Midway, Fairfield, Lexington, Fancy Hill, Natural Bridge, Buchanan, Troutville, Cloverdale, Roanoke, Rocky Mount, Sydnorsville, Martinsville, Ridgeway, Stoneville, Madison, Ellisboro, Stokesdale, Kernersville, and Winston-Salem. Route on to Atlanta through Brinkleys, Lexington, Salisbury, Landis, Concord Newell, Charlotte, Belmont, McAdenville, Lowell, Gastonia, Bessemer City, Kings Mountain, Grover, Blacksburg, Gaffney, Converse, Spartanburg, Duncan, Greer, Greenville, Oak Grove, Piedmont, Anderson, Fair Play, Lavonia, Bowersville, Canon, Royston, Franklin Springs, Pocatigo, Commerce, Jefferson, Winder, Lawrenceville, Snellville, Stone Mountain, Clarkson, Scottdale, Ingle-side, Decatur, Atlanta.

Following the inside route from Atlanta you traverse through Joneboro, Lovejoy, Hampton, Pomona, Griffin, Milner, Barnesville, Forsyth, Smarrs, Bolingsbroke, Lorane, Macon, Vienna, Sibley, Worth, Ashburn, Sycamore, Cycloneta, Chula, Tifton, Eldorado, Lenox, Adel, Hahira, Valdosta, Madison, Falmouth, Branford, Fort White, Hague, Gainesville, Ocala, Dunnellen, Hernando, Brooksville, Trilby, Dade City, Greer, Tampa, Tarpon Springs, Belleair, and St. Petersburg.

### Chicago-Mammoth Cave, Ky.

**Lake Forest, Ill.**—Editor Motor Age—Kindly let me know the best route from Chi-



cago to Mammoth Cave, Ky., also if the roads are fit for autumn touring.—C. L. Krafft.

Autumn touring is ideal and scenery through Kentucky cannot be bettered. Follow the regular road to Indianapolis which means South Chicago, Kensington, Thornton, Highlands, Schererville, Crown Point, Shelby, Thayer, Enos, Morocco, Goodland, Fowler, Lafayette, Frankfort and Lebanon, then on to Louisville via Franklin, Columbus, Seymour, Uniontown, Scottsburg, Henryville, Memphis, and Sellersburg.

Between Louisville and Mammoth Cave the run is via Beuchel, Fern Creek, Mt. Washington, Smithville, Bardstown, New Haven, Buffalo, making a visit to Lincoln farm a few miles west, Pikeview, Hardyville, Bear Wallow and Cave City.

#### Detroit, Mich.-Tampa, Fla.

Detroit, Mich.—Editor Motor Age—I expect to make a trip to Tampa, Fla., this fall and would like the best route.—P. V. Alpers.

Your route lies to Cleveland 178 miles, a day's run via Trenton, Monroe, Toledo, Fremont, Clyde, Bellevue, Monroeville, Norwalk, Oberlin, and Elyria. Drop down to Pittsburgh through Youngstown, 140 miles through Bedford, Kent, Ravenna, Youngstown, Darlington, Beaver Falls, New Brighton, Rochester, Sewickley, and Glenfield. A very good road extends east to Hagerstown, Md., 164 miles through Wilkinsburg, Adamsburg, Greensburg, Ligonier, Bedford, Everett, McConnellsburg, Mercersburg and Greencastle.

Hagerstown to Staunton is a good pike road of 133 miles through Williamsport, Martinsburg, Clarksville, Bunker Hill, Winchester, Middletown, Maurertown, Woodstock, Edinburg, Mount Jackson, New Market, Harrisonburg, Mount Crawford, and Mount Sidney from which point you can follow the directions to Winston-Salem given in the Oskaloosa, Ia., inquiry.

The shortest route to Charlotte is Eller, Welcome, Lexington, Spencer, Salisbury, Landis, Concord and Newell. Mostly macadam runs the 116 miles to Greenville by way of McAdenville, Lowell, Gastonia, Bessemer City, Kings Mountain, Grover, Blacksburg, Gaffney, Converse, Spartanburg, Duncan, and Greer, to Atlanta, 189 miles a dirt road extends through Oak Grove, Piedmont, Anderson, Fair Play, Lavonia, Bowersville, Canon, Royston, Franklin Springs, Pocatigo, Commerce, Jefferson, Winder, Lawrenceville, Snellville, Stone Mountain, Clarkson, Scottdale, Ingleside, and Decatur.

You will find considerable clay road on the way to Macon through Jonesboro, Griffin, Forsyth, Bolingbroke, and on to Tampa your itinerary is Vienna, Sibley, Ashburn, Tifton, Lenox, Adel, Moneola, Valdosta, Madison, Fla., Live Oak, Branford, High Springs, Gainesville, Ocala, Hernando, Inverness, and Brooksville. Atlanta to Macon is 97 miles, Macon to Valdosta, 150 and to Tampa about 300.

#### Chicago-San Francisco, Cal.

Hobart, Ind.—Editor Motor Age—Please give me data on the road from Chicago to Frisco.—Dr. C. Faulkner.

The southern highway should be followed after the middle of September. You will find the road outlined in the issue of August 27. Connection is given from Kansas City to Dodge City in the Hedrick request, in this issue and between Chicago and Kansas City your road is as follows:

To Clinton, Ia., through Oak Park, Lombard, Geneva, DeKalb, Creston, Rochelle, Ashton, Franklin Grove, Dixon, Sterling and Morrison, to Des Moines via DeWitt, Lowden, Mechanicsville, Marion, Cedar Rapids, Marengo, Ladora, Brooklyn, Grinnell, Newton, Colfax; to Kansas City over the Interstate Trail via Somerset, Indianola, Liberty, Osceola, Leon, Davis City, Lamoni, New

Hampton, Ford City, King City, Rochester, St. Joseph, Atchison, Lowmont, and Leavenworth.

#### Concordia, Kan.-Jacksonville, Fla.

Hollis, Kan.—Editor Motor Age—Please publish the route from Concordia, Kan. to Jacksonville, Fla., by way of Kansas City and St. Louis.—V. H. Goodman.

To reach Manhattan you either will have to go north to Belleville, Cuba, then south through Clyde, Clifton, Morganville, Clay Center, Leonardville, Riley and Kents unless you are sure you can get across the river at one of the above intermediate cities or south from Concordia to Minneapolis, Salina then east to Abilene, Detroit, Chapman, Junction City and Ft. Riley to Manhattan. The former is shorter but bad in wet weather. Kansas City then is 135 miles via Wamego, St. Marys, Rossville, Kingsville, Topeka, Perry, Lawrence, Eudora, Cedar Junction and Shawnee.

To cross Missouri it takes 2 days and the most traveled road extends through Centropolis, Independence, Blue Springs, Oak Grove, Odessa, Higginsville, Mt. Leonard, Marshall, Slater, Glasgow, Armstrong, Yates, Higbee, Renick, Clarke, Mexico, Martinsburg, Wellsville, Montgomery, New Florence, High Hill, Warrenton, Wright City, Wentzville, Colterville, and St. Charles.

To reach Indianapolis a better road will be found by way of Springfield over the Alton way through Granite City, Alton, Brighton, Medora, Carlinville, Girard, Thayer and Chatham then east to Indianapolis through New Buffalo, Decatur, Tuscola, Chrisman, Rockville, Bainbridge and Danville. The two Florida inquiries in the issue of September 24 will finish your itinerary.

#### Kalamazoo, Mich.-Mobile, Ala.

Kalamazoo, Mich.—Editor Motor Age—Kindly give the best route to Mobile, Ala.—J. E. Cheney.

Go to South Bend via Paw Paw, Decatur, Dowagiac and Niles, then Indianapolis via Plymouth, Rochester, Logansport, Middle Fork, Kirklint and Rosston. Between Indianapolis and Louisville the route mostly followed is Franklin, Taylorville, Columbus, Waynesville, Seymour, Crothersville, Scottsburg, Henryville, and New Albany.

Quite an improvement over last year is the road to Nashville and one can now travel through Mt. Washington, Beardstown, Buffalo, Cave City—making a side trip to Mammoth Cave from here if desired—Glasgow, Scottsville and Gallatin.

Directly south to Birmingham is a run through Brentwood, Columbia, Pulaski, Elkmont, Decatur, Hartsells, Cullman, Hanceville, Morris and Birmingham. The run to Montgomery is via Pelham, Montevallo, Thorsby, Clanton, Marbury, and Wetumpka, and on to Mobile routes via Selma, Pine Hill, Thomasville, Grove Hill, Jackson, McIntosh, Malcolm, Mt. Vernon, Axis, and Saraland.

#### Oskaloosa, Ia.-Winston-Salem, N. C.

Oskaloosa, Ia.—Editor Motor Age—Kindly publish a route to Winston-Salem, N. C., with general road conditions. Give distances.—Chas. S. McCall.

Take the road to Burlington which passes through Cedar, Fremont, Ottumwa, Batavia, Fairfield, Mt. Pleasant and Middletown; then through Illinois the routing is Monmouth, Galesburg, Knoxville, Maquon, Farmington, Peoria, Tremont, Mackinaw, Bloomington, Farmer City, Champaign, and Danville; then through Indiana to Indianapolis, passing through Covington, Veedersburg, Crawfordsville and Jamestown.

The National highway should be followed as far east as Cumberland, W. Va. It is a day's run of 172 miles to Columbus, through Greenfield, Knightstown, Cambridge City, Richmond, Arlington, Vandalia, Springfield, Harmony, Brighton, and West Jefferson. Wheeling, W. Va., is 128 miles beyond and

reached through Reynoldsburg, Hebron, Gratoit, Zanesville, New Concord, Cambridge, Elizabethtown, Morristown, and Bridgeport.

It is an easy matter to follow the pike through Washington, Pa., Beallsville, Brownsville, Uniontown, Keyser, Grantsville, Frostburg to Cumberland, 133 miles.

It is 160 miles to Staunton, Va., making the towns of Frankford, Monterey, McDowell, and Churchville, then 213 miles to Winston-Salem over rolling country, some stretches of macadam but mostly good dirt through Minte Springs, Greenville, Midway, Fairfield, Lexington, Fancy Hill, Natural Bridge, Buchanan, Troutville, Cloverdale, Roanoke, Rocky Mount, Sydnorsville, Martinsville, Ridgeway, Stoneville, Madison, Ellisboro, Stokesdale, Kernersville, and Winston-Salem.

#### Lincoln, Ill.-Indianapolis, Ind.

Lincoln, Ill.—Editor Motor Age—Kindly inform me the best route to Indianapolis and then to Florida.—B. N. Nelson.

Blue Books 4 and 3 are needed for a Florida trip from Illinois.

If you go to Clinton and Maroa, then you will have a good road from Decatur to Indianapolis, and can follow the directions given to the Hillis, Kan., inquiry. The southern roads have received a great deal of attention since last year's touring season and they have been greatly improved.

#### Kansas City, Mo.-Los Angeles, Cal

Hedrick, Ia.—Editor Motor Age—I would like some information on the best route to Los Angeles from Kansas City. I am contemplating a trip about the middle of October.—J. W. Brooks.

Following the Old Santa Fe trail, you run 97 miles through Lenexa, Olathe, Baldwin, Overbrook, and Scranton, to Osage City, then to McPherson 127 miles through Admire, Allen, Council Grove, Herington, Marion, and Hillsboro. Thirty-three miles further, Lyons, reached through Windom and Mitchell you come across the new Santa Fe trail and continue on it to Dodge City via Great Bend, Pawnee Rock, Kinsley, and Spearville, where you meet the Borderland trail and follow it to the coast.

Information on this road to the coast is in the issue of August 27 and captioned Touring to the Coast.

#### Fayetteville, Ark.-Tampa, Fla.

Fayetteville, Ark.—Editor Motor Age—Kindly give the best route to Tampa, Fla. Would like to return a different way.—L. Bryan.

To come north to Kansas City via Springfield, Rogers, Bentonville, Gravette, Pineville, Mo., Neosho, Carthage, Jasper, Lamar, Sheldon, Nevada, Rich Hill, Butler, Harrisonville, and Peculiar will give you the best roads.

You can then follow the instructions given the Hollis, Kan., inquiry, then in the Detroit, Mich., inquiry from Atlanta, Ga., on.

In returning you will not get roads to your liking particularly after you leave Tusculumbia, Ala., going through Tennessee and Arkansas. Returning over the same road as far as Atlanta, you can go to Birmingham via Douglasville, Bremen, Edwardsville, Anniston, Ashville and Springville, then north to Decatur through Morris, Blount Springs, Hanceville, Cullman, Hartsells and Flint. Heading towards Memphis the towns are Hillsboro, Courtland, Leighton, Tusculumbia, Cherokee, Corinth, Essary Springs, Moscow, and Colliersville.

It is 162 miles to Little Rock, for the most part dirt roads, some macadam and some very poor sand and all very bad in wet weather. The road leads through Mound City, Madison, Forrest City, Goodwin, Wheatley, Clarendon, Prairie Center, Lonoke, and Galloway. Between Little Rock and Fayette the run lies through Conway, Wooster, Plumerville, Morrilton, Dardanelle, Paris, Ft. Smith, Vanburen, and Winslow.



# The Readers' Clearing House



## CASTOR OIL AS MOTOR LUBRICANT Suitable for High-Speed Work but Not for Ordinary Motors

ALLIANCE, Neb.—Editor Motor Age—What does Motor Age think of C. P. castor oil as a lubricant for motors?—M. C. Hubbell.

Castor oil is used exclusively in high-speed motors, such as racing car engines and aeroplane motors, but there are many disadvantages which make it unsuited for ordinary types.

There is doubt as to it ever being used by motorists in general. Castor oil is a vegetable product and when used in ordinary slow-speed motors will gum rapidly. The rate of oxidization is too great, in fact a discussion regarding the various components of castor oil shows immediately its unsuitability for ordinary gas engines. Racing cars and aeroplanes use it because of its high viscosity, which is necessary when the piston to cylinder clearance is great, as it is in racing-car engines.

The chances of gumming and oxidization in high-speed motors is much less than in the slow-running motors and further, these conditions usually begin after the motor has stopped. Racing motors are stopped only after a race and then the driver cares little whether the cylinders gum or not, for they are cleaned thoroughly before the next race. In ordinary practice the starting and stopping, especially in cold weather, would seal the pistons almost. The odor of burning castor oil is another objection, and the price of chemically pure castor oil is prohibitive.

## HOW TO SAVE MONEY ON SOFT SOAP Reader Gives Information Which Will Be Valuable to Garagemen

Oak Park, Ill.—Editor Motor Age—Soap making is one of the oldest industries. Every live and up-to-date soap plant knows how to "fill" the soap to meet the demand for a cheap soap, bringing up the weight, volume and bulk to the desired consistency, but they do not all do it. There are many kinds of adulterants used, and all of them take more or less moisture and free alkali to hold them properly combined in the soap. Dry soap powder does not require moisture, yet there is a new process whereby a soap powder contains 35 per cent of moisture and appears perfectly dry.

The soft potassium soaps are the safest and best soaps for use in cleaning painted and varnished surfaces. Sodium oxide soap will have a dulling effect on a varnished surface much quicker than a potassium oxide soap, in fact the latter, when perfectly made and free of adulterants, can be used thousands of times without killing the varnish. An inexperienced washer or one who does not use good judg-

ment could kill the varnish at first washing with the best soap made.

Take for instance this illustration: Smith's soap costs 5½ cents per pound, and Jones' soap costs 4½ cents per pound. On analyzing, we find that Smith's soap contains 63 per cent of true cleansing power of soap; Jones' soap contains 45 per cent of cleansing power and should cost only 3.9 cents per pound, because of the small amount of real cleaning power that is in it. Taking another viewpoint: Smith's soap is costing 5½ cents per pound, or \$5.50 per 100 pounds. In Smith's soap there are 63 pounds of true soap. Then the true soap will cost \$5.50, divided by 63, or \$8.70 per 100 pounds. Jones' soap is costing 4½ cents per pound, or \$4.50 per 100 pounds and contains only 45 per cent of real soap. Then the actual soap in the cheap soap will cost \$4.50 divided by 45, or \$10.00 per 100 pounds. Here it is proven that the true cleansing power can be obtained for less money by buying the more expensive soft soap.

This comparative test of values is based upon the assumption that the dealer or manufacturer of the low-priced soap is strictly honest and not adding a profit to the moisture that must go with the filler, but only adding the excess cost of barrels, freight, cartage, and labor to hold and carry the filler. If the dealer tacks on a profit to the above items of expense, the low-priced soap is indeed an expensive purchase. Below is shown the fallacy of trying to save money by purchasing the low-priced soft soap:

	Good Soap	Cheap Soap
	Cents	Cents
Cost of 5 pounds pure soap in bulk at 6 cents; cheap soap at 4 cents.....	30	20
Cost of pail to hold the soap.....	9	9
Cost of crate for pails, per pail.....	3½	3½
Cost of cartage and freight.....	2	2
Cost of labor.....	1½	1½
Total, dealer's profits and overhead charges omitted.....	46	36

In each case the cost of labor and package to hold the 5 pounds is the same, 16 cents. Over 44 per cent of the cheap soap is pail and only 34 per cent of the pure soap is pail. In 5-pound pails, the high cost of cheap soap is too apparent for further comment. In barrel quantities there is an excess cost on account of the filler and at the best purchase the cheap 4-cent soap will cost 7 cents per pound for the real soap content.—Wilbur M. Kelso.

## Displacement of Cylinders

Kewaunee, Wis.—Editor Motor Age—Kindly give the piston displacement of 3¼ by 3¼-inch cylinder, also of 3½ by 5-inch cylinder.

2—Kindly give the brake horsepower at 1,000 r. p. m. of 3¼ by 3¼, four-cylinder engine, also of a 3½ by 5-inch, four-cylinder engine.—Heck & Dickelman.

1—A 3¼ by 3¼-inch cylinder has a piston displacement of 41.43 cubic inches and a 3½ by 5-inch cylinder a displacement of

48.10 cubic inches. The displacement of any cylinder is equal to the square of the bore time .7854 times the stroke.

2—The brake horsepower of any motor is its horsepower obtained by actual test and since all motors of the same dimensions do not show the same horsepower it is almost impossible to give you a definite answer. If you will give definite examples Motor Age will obtain the brake horsepower figures for you.

## WILL ENTER CAR IN 500-MILE RACE Indiana Reader Is Looking Around for a Motor—Considering a Knight

Elkhart, Ind.—Editor Motor Age—I am about to build a race car for the Indianapolis races in 1915, and am undecided as to a motor. Can Motor Age give a list of motors which are speedy and durable?

2—Where can I get a Benz motor?

3—Is the Russell-Knight motor suitable for such a contest?—F. L. Hursh.

1—The Wisconsin Motor Mfg. Co., Milwaukee, Wis., makes motors for racing cars and it has supplied engines for many of the American winners. The Mercer company, Trenton, N. J., makes a racing motor, but whether it would be sold to an individual is not known. F. E. Duesenberg, Des Moines, Ia., no doubt would be able to supply you with a motor for a racing car and any of the following motor makers undoubtedly would build a special type suitable for racing purposes: Rutenber Motor Co., Marion, Ind.; Buda Co., Harvey, Ill.; Northway Motor & Mfg. Co., Detroit, Mich.

2—At the present time you will have to communicate with the Benz Import Co., 250 W. 54th street, New York, as the factory in Germany is not turning out cars except for military use.

3—That a Knight engine is suitable for racing purposes was proved when the Mercedes-Knight finished in the 1913 500-mile race. Abroad this type of engine has shown up well in racing. As far as Motor Age knows the Russell-Knight has not been entered in open competition in the United States and therefore nothing definite can be given regarding the performance of the engine.

## VALVE TIMING OF THE OVERLAND 42 Figures Same as for 1913 Models—Makers of Valve Reseaters

Marianna, Ark.—Editor Motor Age—Kindly advise me in regard to timing an Overland model 42. Would it be correct to time it the same as the 69 and 71? If not, kindly give the valve timing.

2—Give the valve timing of the Stoddard-Dayton 30.

3—Kindly give the name of a concern making valve refacers.—J. H. Donny.

1—The valve timing of the model 42 Overland is the same as that for the models 69 and 71 given in Motor Age issue of September 3.

2—The valve timing figures of the Stoddard-Dayton 30 are not obtainable of the Maxwell Co., Newcastle, Ind., who supply



the repair parts for the car. The information was lost in the floods of a year ago. However, you would get good results by having the intake valve open about 12 degrees beyond top dead center and close 22 degrees beyond lower dead center. The exhaust valve should open about 38 degrees before bottom dead center and close 5 degrees after top dead center.

3—Valve reseating tools may be obtained of the following makers whose names were obtained from the Automobile Trade Directory. Healy Tool and Appliance Co., Buffalo, N. Y.; Noonan Tool and Machine Works, Rome, N. Y.; H. G. Paro, 30 Michigan avenue, Chicago, and the American Valve Tool Co., Stamford, Conn.

**TUNGSTEN FOR VIBRATOR POINTS Gives Good Service—Pure Platinum the Ideal Metal for This Work**

Clarinda, Ia.—Editor Motor Age—Kindly advise me regarding the comparative advantages of the 15 to 20 per cent irridio platinum points formerly used by the Ford Motor Co., and the so-called carbon points they are at present using on their coils. It is claimed that the carbon points will last two or three times as long as the platinum. Is this true?

2—Who are the manufacturers of the carbon points?—D. D. Drake.

1—The vibrator points of the Ford coils are not of the carbon type but now are of tungsten steel and formerly they were of what is commonly called platinum-iridium. These two metals are closely related as regards physical characteristics when subjected to heat. Pure platinum makes ideal breaker points for platinum is unaffected by either heat or cold.

2—The following concerns whose names were obtained from the Automobile Trade Directory manufacture sparking points: Baker & Co., Newark, N. J.; Commercial Research Co., Tuckahoe, N. Y.; Roessler & Hasslacher Chemical Co., William street, New York, and the Queen Gray Co., Chestnut street, Philadelphia, Pa.

#### INFORMATION ON ELECTRIC MOTORS

##### Reduction of Voltages Causes a Decrease in Speed—Examples Given

Little Rock, Ark.—Editor Motor Age—I have read everything that Motor Age has published on the subject "Variable Transmission of Power," and am now in a quandary over a statement made in a paper read before the S. A. E. I would like to know what Motor Age can do in the way of supplying information on the subject, as I am unable to obtain this issue. The transmission referred to was arranged in this way:

A gasoline motor was to drive a D. C. generator, which was to furnish current to two motors, one on each rear wheel. The feature of the system was that it was possible to employ either series or parallel wiring at will.

On the control board, I presume, was installed a means to change the wiring by suitable switches so that the car could be started

with the two motors in series and when the speed increased to the proper point the motors could then be changed over to run parallel, thereby getting the full strength of the current and driving the car at the maximum speed.

The point which I want light on is, how can a motor designed for a certain voltage do any pulling at all when connected up to a current either twice or only half as much as the designers figured on?

It is understood that the generator supplying current is an ordinary D. C. machine of low voltage, probably about 32.—C. S. Barry, Jr.

An electric motor designed to operate normally, at 32 volts for example, will operate at voltages under 32, but the speed will be reduced considerably. It also may be operated at slightly over 32 volts, provided the designer took this into consideration in the windings. Many electric vehicles are operated by simply changing the voltage across the motor terminals, this being accomplished either by inserting resistance in the line or by altering the battery connections so that either series or parallel connections may be made with various numbers of batteries. However, a motor designed to operate at 32 volts maximum would burn out if the voltage were doubled, just as a 110-volt lamp would burn out if inserted in a 220-volt circuit.

#### WHEN DO VALVES NEED GRINDING?

##### Periods May Vary—Unequal Compression in Cylinders a Sign

Shelby, N. C.—Editor Motor Age—Under ordinary conditions how many miles should a car run before the valves need grinding? After running my car 4,000 miles it does not have quite so much power on high gear as it did when new and the compression is better in some cylinders than others.

2—Would an excess of oil, or too little oil, cause the valves to need grinding sooner than under ordinary conditions?

3—How can I align the front wheels of a Grant car?—Fred E. Greene.

1—A new motor, after having been in use but one month, may require its valves be ground, and, on the other hand, it may not need valve grinding for two or perhaps three months. In old cars the valves usually need grinding every 2,000 or 3,000 miles, but some owners take particular pains and grind the valves the moment the compression loss even is slight. A new car will need valve grinding in a short time, because it is customary to feed excess of oil to such a motor. This causes carbon to accumulate rapidly and the carbon making its way to the valve face and seat thus requires them to be ground. After the car has been in service the valve-grinding periods are not at all frequent.

Where unequal compression exists the valve should be ground, provided, of course, they are properly adjusted when the compression test is made. If the motor is an old one the loss of compression may be due to leaks about the cylinders or to loose pistons, but in your car, which has run only 4,000 miles, such conditions hardly would exist. It is safe to assume therefore that the valves in your motor need grinding.

2—Should too much oil be fed there is a possibility of carbon being deposited in quantities, due to the burning of the excess oil. This carbon, as stated above, gets onto the valve seats and the valve

faces and causes pitting, as it is called, and consequent improper seating and loss of compression will follow. The feeding of too small amount of oil hardly would cause a loss of compression through the valves. But lack of lubricating oil will cause excess wear on the cylinder wall and piston. This wear might allow of gas escapeage. A dry motor will become hot more quickly than one properly lubricated and if operated continually above normal temperature the tendency toward valve warpage will be greater.

3—Front wheel setting was described and illustrated in this department in the June 18 issue of Motor Age.

#### HINTS FOR THE AMATEUR MOTORIST

##### Tells How to Tow a Car with Crushed Rear Wheel Bearings

Powell, Wyo.—Editor Motor Age—Possibly the following suggestions may be of value to fellow motorists:

Concerning trouble in semi-floating rear axles, sometimes the bearings on the axle-shaft becomes crushed, due to improper oiling, wear, or defects, which makes it a difficult matter to propel the car by its own power or to tow it. In order to get the car under way the following is suggested: Remove the wheel on either side with the key and grease the shaft well. Replace the wheel without the key, putting on the nut so it does not bind the axle. This allows the car to be towed with ease and without further damage to the bearing and shaft.

Occasionally one has only sufficient gasoline to reach one's destination if the road is level, but is liable to encounter a grade which the car cannot make. It is possible the operator of the car is not expert at reversing up hill. If he will screw the filler cap on the tank down tight and cut a match stick to fit the opening, then blow in the small opening, immediately plugging it with the match stick, he will be able to make the hill without any trouble. After ascending the grade take out the match stick.—J. E. Black.

#### Moth Balls in the Fuel

Stow, N. Y.—Editor Motor Age—I have been told that by putting moth balls in the gasoline, about one ball to every 5 gallons, that it would practically eliminate carbon deposits. Does Motor Age know anything about this, and is there anything in moth balls to injure the cylinders and spark plugs?—M. Butts.

There is nothing in moth balls to injure the motor, for the substance is nothing more than a product of heavy oils, and is technically called naphthalene. It has the composition,  $C_{10}H_8$ , in which C represents carbon and H hydrogen. It is apparent there is much carbon in this substance and it appears that instead of reducing the carbon deposit it should increase it. Naphthalene has been used as a fuel for gas engines by mixture with water and other substances and in the July 8 issue of Motor Age, on page 24, a story was printed telling of the results of a test with fuel so manufactured. Since its use for a short period will not be harmful, there is no reason why you should not try it.

#### Questions Answered and Communications Received

I. C. Hubbell.....Alliance, Neb.  
W. M. Kelso.....Oak Park, Ill.  
Heck & Dickelman.....Kewaunee, Wis.  
E. L. Hursh.....Elkhart, Ind.  
J. H. Donny.....Marianna, Ark.  
D. D. Drake.....Clarinda, Ia.  
C. S. Barry, Jr.....Little Rock, Ark.  
F. E. Greene.....Shelby, N. C.  
J. E. Black.....Powell, Wyo.  
M. Butts.....Stow, N. Y.

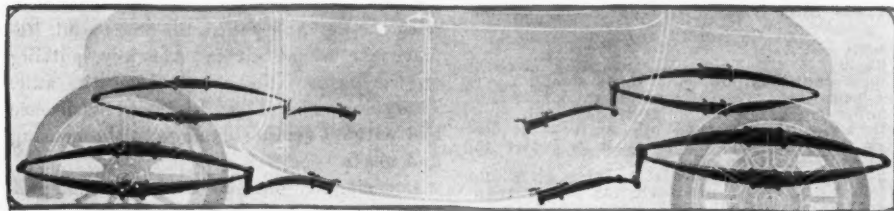
No communication not signed with the reader's full name and address will be answered.

# Many Refinements in 1915 Waverley Electric Broughams

## Model 109 Has New Exterior Appearance—Four-Chair Feature Retained



The new model 109 Waverley which has been improved considerably in external appearance. Note the addition of oval windows and the more delicate curvature of the rear deck. This car has four-chair seating arrangement and sells for \$3,150



The unusual spring suspension of the Waverley electrics consists of what may be called five-quarter elliptics. It is claimed this suspension gives the advantage of elliptics as to cushioned riding and of cantilevers as to checking rebound

**A** REFINED design of electric brougham, known as model 109 and incorporating many details new to practice in this field, has been announced by the Waverley Co., Indianapolis, Ind. A feature of the new model is a four-chair body that supersedes the previous body of that type made by the Waverley company.

The entire exterior appearance of the body fitted to the new car is new. The rear corners are now rounded instead of carried to an edge as in the previous model. The battery boxes which still are mounted under the front and rear decks are lower and smaller and have a more delicate curvature, the windows are larger and now are sashless; oval corner windows are fitted and decorative window shades are factors in the improved and more luxurious appearance of the car.

### Four-Chair Seating Retained

The four-chair seating arrangement is continued. By this scheme each passenger has the maximum of knee, shoulder and elbow room, and at the same time an extended range of vision. In the construction of the body a new departure for Waverley has been introduced and that is in the use of aluminum. The roof and panels are now of this light metal.

### FEATURES OF THE 1915 WAVERLY ELECTRICS

*Model 109 has four-chair seating  
More luxurious appearance  
Sashless windows are larger  
Roof and panels are of aluminum  
Oval corner windows used  
Lower body suspension  
Motor and drive unchanged  
Four body styles  
Any standard battery installed*

Another feature of the 109 model, which supersedes the 107, is the curved sill, which gives a low body suspension and yet does not alter the road clearance. The floor of the new car is 7 inches nearer the ground than that of the previous design and yet the road clearance is said to remain unaltered.

The same motor is retained, and the same drive and spring suspension. The latter is a feature of Waverley design, being five-quarter elliptic all around. In the entire spring suspension there are 33 feet of alloy steel distributed between 84 spring

leaves. Throughout, the mechanical parts of the car standard Waverley practice has not been departed from.

On the new model the source of power is a forty-two cell eleven or thirteen plate lead battery. Any standard make will be supplied and if the purchaser of the car desires to add slightly to the cost of the car the Edison or Ironclad oxide type will be supplied. The battery supplied with the car is sufficient under ordinary circumstances to carry the car for a distance of 75 miles.

The Waverley company emphasizes the fact that the ampere-hour capacity is not the true method of measuring the capacity of a battery for purposes of judging the distance that it will carry the car. The true criterion is the watt-hour capacity, it says. This is reached, in the case of a lead battery which measure about 2 volts to the cell, by multiplying the number of cells by two and multiplying this result by the ampere hours capacity of the battery.

In the case of the Edison battery the voltage runs about 1.2 to the cell. For this reason the number of cells will have to be multiplied by that figure in calculating the capacity of an Edison battery. In fitting the Edison battery at the extra figure the Waverley company supplies the sixty-cell type.

### Batteries Under Decks

The batteries are carried at the front and rear ends of the cars. The battery boxes are covered by the sloping decks of the car which are rounded off to give a harmonious design. In order that no acid can reach the paint through spilling of the liquid, the battery compartments are lined with acid-proof material.

The flow of current from the battery to the motor is regulated through a knife-blade type of controller. As the handle of the controller by means of which the driver regulates the speed of the car, is pushed forward, the knife-blade switches are picked up one by one. Each blade of the switch is of brass, and the contact is made on both sides of the blade by means of copper blocks which are sprung apart on the entrance of the blade. The springs which hold the blocks tightly against the knife blade are of the finger type and are made from phosphor-bronze. A Yale lock is fitted on the handle of the controller to guard it against theft. The car cannot be started on any but the lowest speed on account of an interlocking device. The electrical connections are made without any break in the circuit, giving a continuous smooth acceleration.

A medium-speed, four-pole series-wound motor is employed in the new Waverley as in all the other models of this make. The nominal speed of the engine is 1,500 revo-



lutions per minute. This speed has been selected because it is high enough to furnish the high torque necessary in pulling the car through a difficult stretch of road and yet it is not of such high speed that there are material losses through the necessity of a large gear reduction between motor and axle.

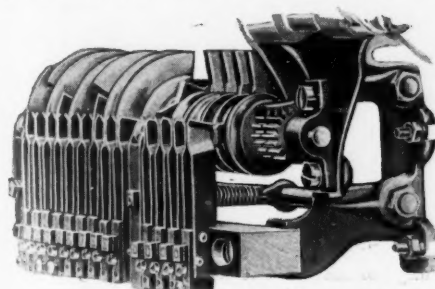
The motor has a nominal voltage of 80 and the battery of 84. This allows for a drop of 4 volts in the line between the battery and the motor. As the entire system, especially as regards the controller has been designed to keep the current loss through resistance at a minimum, this allows a good factor of safety.

#### Power Transmission to Axle

The motor is suspended from the body just forward of the rear axle and as will be seen from the illustration there are two reductions. The first is through a silent chain from the armature shaft of the electric motor to a shaft parallel with the rear axle. From the latter shaft the drive is transmitted by means of a silent-herringbone gear to the rear axle. The reduction is such that at 1,500 r.p.m. of the motor the car is traveling at a speed of 20 miles an hour.

The rear axle is floating, the shafts being of 3.5 nickel steel heat treated tubing. One end of the axle shaft floats in the differential and the other is connected to the wheels by means of a clutch through which the drive passes. The short shaft between the rear axle and the motor is merely a driving member as are the axle shafts. They are not called upon to bear any twisting torque strains. The differential gears and the herringbone drive can be exposed to view by the removal of cover plate from the housing as shown in the illustration.

The front axle is an I-beam section of one-piece drop-forged steel. The spring pads which carry the elliptic front springs are forged integrally with the axle. A rather unusual feature in axle work is the outward slant given to the steering knuckle and the downward tilt, to counteract this given the spindle. This results in a semi-irreversible steering gear as there is a greatly reduced tendency of a road shock to swing the front wheel about the tilted pivot pin. The steering connections are ball and socket all the way through. The joints are provided with coil springs to



Knife-blade controller of the model 109 Waverley. The blades are of brass and contact is made on each side of the blades by copper blocks which are sprung apart on entrance of the blade



Interior view of the model 109 Waverley four-chair brougham

absorb the shocks and they are universal in action.

The frame of the Waverley car is a patented feature which ingeniously furnishes a large amount of strength and at the same time forms a good support for the body. A trussed hardwood beam is used. This is brought low to the ground in a graceful sweep providing an entrance low to the ground and yet not lowering the part of the body which supports the motor to such an extent that the road clearance is cut too low.

Both the front and rear wheels are carried on the Timken tapered roller bearings. These bearings and the inner sides are kept dust-proof by means of felt washers. The other bearings throughout the car, notably in the motor and the transmission units, are annual balls.

#### Unique Spring Suspension

The spring suspension of the Waverley cars is unique in that it employs the seldom-used five-quarter elliptic for both

front and rear. A layout of this suspension is shown in an illustration. The engineers claim for this type of suspension all the advantages of the elliptic for softness and of the cantilever in the absorption of road shocks.

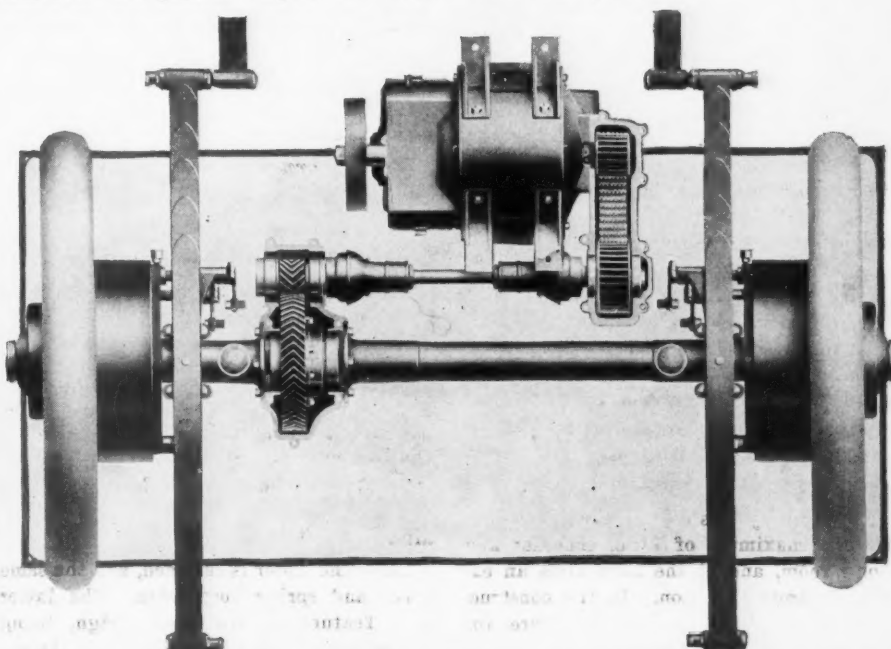
A double set of expanding brakes is used on all Waverley cars. In addition to this the driver has at his disposal a third, and very effective brake on the motor. The latter is a band, contact type, and the differential acts very effectively as an equalizer when this brake is used.

The replacement of the previous four-chair brougham, known as the 107 by the 109 model keeps the Waverley line of passenger cars at five bodies. These with their selling prices are as follows:

Model	Body	Price
109.....	Four-chair brougham.....	\$3,150
104.....	Front drive, four-passenger..	2,900
105.....	Rear drive, four-passenger...	2,500
108.....	Limousine, five-passenger, forward drive.....	3,500

The body work on the new model is the result of a special effort to put out the most luxurious possible town car at the price. The roof and panels are of aluminum. The length of the car overall is 149 inches. The extreme width is 66 inches. Of the length 131 inches is taken up by the body. The wheelbase is 106 inches. All four seats are large enough to accommodate people of more than average stoutness. Two of the rear seats are 18.5 by 20 inches, the other rear seat is 23 by 20 and the driver's seat is 18 by 15.5. The road clearance is 10 inches and the step to the ground 14 inches.

The upholstering work is optional. It may be in any of the imported corded fabrics or of special limousine leather. The standard color is black with majestic blue panels, but the car will be painted to suit the demands of the individual. The tires are 34 by 4-inch front and 34 by 4.5 rear. They may be cushion or pneumatic at the same price.



The Waverley double-reduction showing the drive from the motor armature shaft to auxiliary shaft by silent chain and from the auxiliary shaft to the rear axle by herringbone gears

# Six New Body Types in the 1915 Detroit Electric Line

Few Instances of Higher Prices—Chassis Are Refined



A NEW 1915 DETROIT ELECTRIC IS THE CABRIOLET, SHOWN AT THE LEFT. THE COUPE IS SHOWN AT THE RIGHT

FOR 1915 the Anderson Electric Car Co. offers six body types. As no radical changes in the principles involved in the construction of the new cars as compared with the 1914 output, it would seem as if the manufacturers of the Detroit electric believe they have arrived at a standard construction of approved excellence. The company is in such shape now in its manufacturing department that it will be possible to begin shipments several months earlier than before.

Five of the six new body types are mounted on a chassis of 100-inch wheelbase, while only one of them, a four-passenger rear-drive brougham, is fitted to a chassis with a 94-inch wheelbase. All of the models on the longer wheelbase have worm drive, with the worm underneath the wheel, and their battery is of slightly larger capacity than that of the other model, which is fitted with a bevel axle.

#### Few Price Changes

Prices are practically the same as they were, although due to greater refinement and finish they are in some cases slightly higher. Model 50 cabriolet is priced at \$2,650 with lead battery, and \$3,530 with Edison battery; model 51, four-passenger brougham, at \$2,850 with lead and \$3,730 with Edison; model 52, duplex-drive, five-passenger brougham, at \$3,000 with lead and \$3,880 with Edison; model 53, forward drive, five-passenger brougham, at \$2,950 with lead and \$3,830 with Edison; model 54, rear-drive five-passenger brougham, at \$2,950 with lead and \$3,830 with Edison, and model 55, rear-drive four-passenger brougham with lead battery at



INTERIOR OF DUPLEX DRIVE FIVE-PASSENGER DETROIT ELECTRIC, WHICH SELLS FOR \$3,000

#### FEATURES OF THE 1915 DETROIT ELECTRICS

*Five bodies on 100-inch chassis  
One body on 94-inch car  
Worm drive on large cars  
Battery capacity increased  
Better protection for mechanism  
New wiring method  
Drip moulding for protection against rain*

\$2,600. The last named, model 55, is the 94-inch wheelbase car and corresponds to last season's model 43, selling at \$2,550. Model 53 corresponds to the \$2,850 car of 1914, while the duplex-drive model 52 is the same in price as the one it succeeds of 1914, and so on.

Naturally, the worm-drive models are the leaders this year and several refine-

ments have been made in these models, as well as in the bevel-driven type. Battery capacity has been somewhat increased, and though the number of cells is the same as last year, the number of plates per cell has been increased from thirteen to fifteen, this referring to the lead batteries. That is, the 100-inch wheelbase cars have forty-two cells of fifteen-plate type, instead of thirteen-plate, while the 94-inch has forty cells; also fifteen instead of thirteen-plate.

A new feature of importance is the metal compartment ahead of the motor and accessible through a trap door in the floor, in which is mounted the controller mechanism, brake on the head of the motor, the Klaxette

horn, which replaces a bell as a warning signal, the ammeter, shunt and the throw-over switch, used to change the lighting connections from one half of the battery to the other. These parts are afforded the best protection in this location and are readily reached. The trap door is fastened in and prevented from rattling by rubber rollers. For additional protection, the controller has an extra cover of its own which can be removed by loosening two clips. The controller formerly occupied a position under the rear seat.

#### New Wiring Method

To remove it from the car in its new position, it is only necessary to disconnect the cables and remove three screws, when the controller can be lifted bodily through the trap door.

Due to this new controller location and also to a new scheme of wiring, whereby all wires are led to a terminal board pro-



vided under the left end of the rear seat, and all wires leading up from the chassis and down from the body are connected to numbered positions on this terminal board, it is a very easy matter to take the body from the chassis without in any way disturbing the wiring on either body or chassis. It is simply necessary to disconnect the chassis wires from the terminal board and then so far as the electrical connections are concerned, the two parts are free of one another.

#### Heavy Wires Are Used

Besides this simplified wiring, the wires are heavy, as also are the copper contacts in the controller. This gives ample current-carrying capacity and serves to reduce considerably the voltage losses between battery and motor. The wiring is made up in forms before installing on the chassis. The small wires for the lights and horn are kept separate from the heavy power wires, while the forms are mounted by means of cleats, using conduits wherever wires are liable to short circuit or wear.

Detroit electric bodies, which are constructed entirely in the company's shops, are examples of high art in coach work and are even more refined than in the past. The door windows are sashless and fitted with a new type of window lift to replace the hand-lifting by means of straps. It is merely necessary to turn a small nickel-plated handle to raise or lower the glass the desired amount.

As an illustration of the refinement to which the body construction has been carried, aluminum drip moldings have been placed over the doors to prevent water from dripping upon those entering or leaving the car on a wet day. Door panels are of solid sheet aluminum with moldings pressed in, thus entirely eliminating the separate moldings formerly used. The window sash are all metal-covered, eliminating the possibility of checking or warping. Another slight change is in the convexing of the front and rear battery hoods on both top and end, so as to cause the water to run off more quickly.

In brougham models equipped with revolving chairs, these chairs are larger and of more comfortable design, while the

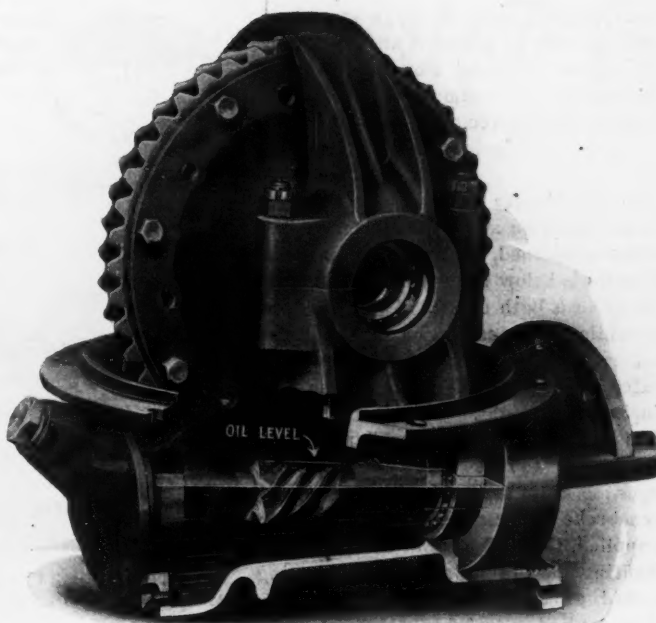
seats are so arranged that any passenger may enter or leave the car without interfering with the others.

Steering continues to be by means of a horizontal lever mounted parallel with the control lever, the latter being operated by the left hand and when advanced accomplishes the forward or reverse movement of the car. In reversing, the control lever is first brought to neutral position, raised slightly until it comes in contact with a stop, and then advanced in the usual way. When brought back to neutral again after reversing, it automatically drops into normal position for running forward, making it impossible to start the car backward when it is desired to go ahead after having reversed the car.

#### Safety Braking System

There are two brake pedals, each of which operates independently a pair of internal expanding brakes on the rear hubs. Between the brake pedals is a third small pedal which operates the emergency cutout switch and sets the brake ratchet. A pressure of the foot on the three pedals at once cuts off the power regardless of the position of the control lever and locks both hub brakes. It then is impossible to release the brakes until the control lever is returned to its extreme backward position.

This interlocking emergency cutout feature is advantageous, especially as the car can be brought to a dead stop suddenly in any emergency by a very natural operation requiring no physical force, while accidents also are prevented by the interlocking feature which makes it impossible



WORM DRIVE USED IN THE 100-INCH DETROIT CHASSIS HAS THE WORM UNDERNEATH THE WORM WHEEL

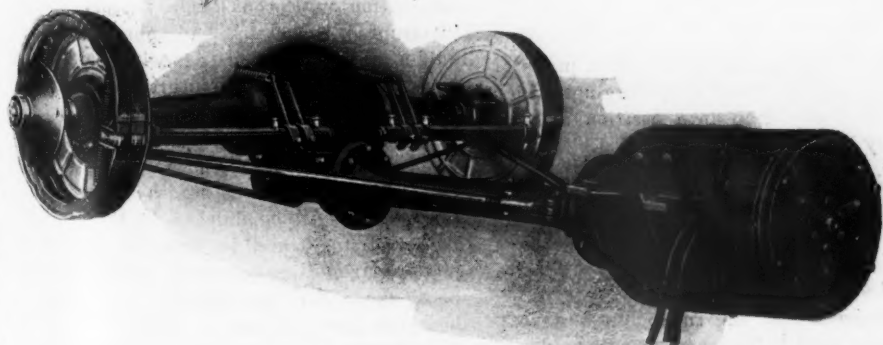
to release the pedals with the control lever in the speed position. Further, a Yale-locking device is provided, which makes it impossible to drive the car when the mechanism is locked.

In the duplex control models, the interlocking cutout feature also prevents starting the car from either driving position unless the pedals are in position to operate from that seat. In these models providing drive from either seat, there are two sets of steering and control levers and two sets of brakes. The operation of shifting pedals from one driving position to the other has been simplified. This is accomplished by pushing forward the small lever at the side of the front steering mast head, which releases the brake pedals so that they can be pushed with the foot flush with the toe board. This automatically locks the pedals which have been pushed down and raises the other set of pedals to the operating position.

#### Battery Capacity and Mileage

As heretofore, the battery is carried in front and rear compartments and the jars are of the high-ribbed type, making it unnecessary to wash the plates. Mileages of from 50 to 85 miles per charge are obtained. There are in the 100-inch wheel-base models eight trays, placed lengthwise of the car, four under the front hood and four under the rear. The battery terminals are all located in the outer end of the trays, where they are most accessible, while the trays themselves are held securely in position by steel clamps.

The drive system is practically the same as it was, the motor, torsion tube and rear axle being in unit. The motor is series-wound and is said to have high torque characteristics and very low internal resistance. It is held on the under side of



THE DRIVE SYSTEM OF THE DETROIT ELECTRICS IS BY INCLOSED SHAFT FROM THE MOTOR. NOTE THE UNDERTYPE WORM HOUSING

the supporting rails by large steel bolts, so that it may be released and easily lowered to the ground. For ordinary care and inspection of commutator and brushes, the cover may be removed while the motor is in place by the loosening of two wing nuts.

The Lanchester type of worm gear, which is used on all the models excepting the one mentioned, is of the type in which the worm is below the wheel and runs continually in a bath of oil. Axles are floating, while the housings have been somewhat redesigned in order to give them greater strength, while at the same time reducing the weight.

The brakes used have been improved by the addition to the drums of stiffening flanges, so as to secure better contact between brake lining and drum when brakes are applied, the stiffening at the same time preventing the brake drum from becoming distorted as the pressure of the brakes used is applied. Both brakes are internal expanding and measure 16 inches in diameter by 1 1/4 inch width.

#### Controller Gives Easier Action

As regards the controller, this has been redesigned to give easier action and more perfect automatic lubrication, the drum segments being lubricated by felt wicks dipping into a reservoir of oil, which is mounted in the controller casing in such a manner that the drum segments are continually wiped by the wick whenever they are moved from one position to another.

The controller affords five forward speeds, which are 5, 8, 13, 17 and 20 miles per hour. The control is of the double voltage system, the battery connection being changed by the operation of the controller, so that a low voltage is applied to the motor for the first three speeds and a high voltage for the two high speeds. Resistance is thus done away with except on the first speed, which makes for quick starting when necessary, and is conducive to efficient hill-climbing possibilities.

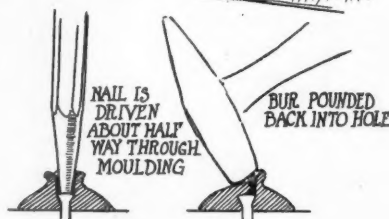
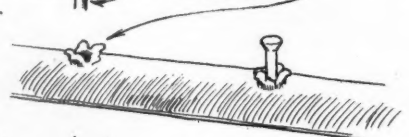
The springs used on the 1915 models are of the latest self-lubricating type in the leaves of which small indentations or cups have been made, these containing lubricant, which serves to prevent squeaking between the leaves.

The frame has been widened at the rear so as to better support the body and give more battery space under the hood. This also relieves the axles and spring brackets of considerable strain, as it brings the weight closer to the wheels. An entirely new feature in frame design has been adopted in making gusset plates integral with the side rails, reducing the number of parts and adding to the strength.

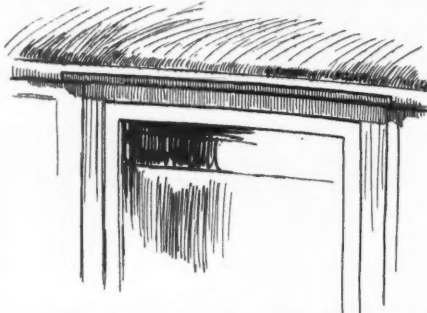
The heavy aluminum oval crown fenders have been redesigned and mounted so that they can be detached from the car without loosening the body bolts. The fenders and aprons are simply bolted to supports provided on the chassis.

Another refinement which will be appre-

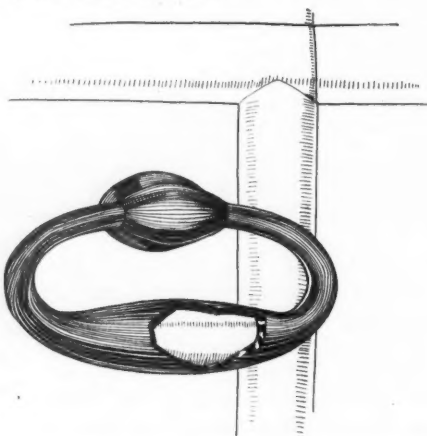
HOLE PUNCHED FROM BACK SIDE LEAVING A BUR AROUND THE OPENING ON TOP



NAIL IS DRIVEN ABOUT HALF WAY THROUGH MOLDING  
BUR POUNDED BACK INTO HOLE  
SMOOTHED WITH FILE AND SCRAPER  
METHOD OF FASTENING ALUMINUM MOLDING ON DETROIT ELECTRIC BODY



DRIP TROUGH OVER DOOR OF DETROIT ELECTRIC TO PREVENT PASSENGERS FROM GETTING WET



THE DOOR HANDLES ON DETROIT ELECTRICS HAVE A COVERING OF VULCANIZED RUBBER

ciated is the use of battery hood props of a new design. Steel drop forgings which automatically drop into position and securely hold the hood in raised position are used. These are very strong and eliminate any danger of hoods falling unexpectedly when raised for battery inspection.

#### New Style Lamp Bracket

Lamps are of the same design as previously used. However, a new style of bracket has been adopted permitting of making permanent soldered connections

while at the same time the lamps are adjustable. The front lamps can be dimmed at the will of the driver by means of a dimming switch at the side of the seat, which throws the two lamps in series.

The number of places requiring grease or oil is reduced to a minimum and all are accessible from the outside of the car, so that there is no necessity for getting underneath the car for any purpose.

#### OVERLAND REPORTS ON FINANCES

New York, Oct. 5.—The Willys-Overland Co., Toledo, O., has issued its report for the year ended June 30 last. The income account follows: Net earnings, \$5,864,858; reserve for contingencies, \$300,000; interest on floating debt, etc., \$333,583; total deductions, \$633,584; balance net income, \$5,231,274; preferred dividend, 7 per cent, \$350,000; balance for common, \$4,881,274; common dividends, 11 per cent, \$2,200,000; balance, \$2,681,274; provision for retirement for preferred stock, \$250,000; surplus, \$2,431,274; previous surplus, \$3,070,959; total surplus, \$5,502,233. The balance sheet, as of June 30 last, follows:

ASSETS.	
Property investment .....	\$22,291,784
Investments in and advances to affiliated companies .....	2,156,029
Materials and supplies .....	7,116,433
Balance due from European distributing agent .....	856,199
Accounts receivable, less reserve .....	2,929,660
Notes receivable .....	1,301,771
Miscellaneous investment .....	53,525
Cash .....	2,112,760
Deferred charges .....	119,679
Total assets .....	\$38,737,840

LIABILITIES.	
Preferred stock .....	\$ 5,000,000
Common stock .....	20,000,000
Capital stock, sub-companies .....	12,825
Real estate mortgage assumed .....	131,500
Bills payable .....	3,900,856
Accounts payable .....	1,727,202
Payroll and salaries accrued .....	174,570
Customers' deposits .....	287,111
Taxes and interest accrued .....	102,260
Reserve for quantity and other rebates to customers .....	682,005
Reserve for car repairs under guarantee .....	30,000
Preferred stock dividends due .....	87,500
Reserve funds .....	1,069,778
Profit and loss surplus .....	5,202,234

Total liabilities .....

The balance available for the common stock is equal to 24.40 per cent on the \$20,000,000 outstanding. In the previous year about 26.5 per cent was earned on the junior issue.

#### HESS-BRIGHT CONDITIONS

Philadelphia, Pa., Oct. 4.—The Hess-Bright Mfg. Co. announces that the war is having little effect upon it. When communication with the Berlin factory was interrupted August 1 it had approximately half a million bearings in stock. Furthermore, as its own manufacturing facilities were inadequate, it took steps to have outside parties make bearings in the sizes where there were shortages, which were few. Rings in various stages of completion, which will be finished in the Hess-Bright factory, and in some cases complete bearings, particularly thrusts, are being made for the company. Although bearings now are being shipped to the Hess-Bright company from Berlin, it is proceeding on the entirely independent basis of manufacturing in this country.





# The Realm of the Commercial Car



## Jeffery Suggests Uncle Sam Subsidize Motor Trucks

IN presenting arguments why the United States government should subsidize motor trucks in order to be prepared for possible war, the Thomas B. Jeffery Co., maker of the Jeffery Quad, estimates that at the present time there are only 39,000 power-propelled vehicles of the required sizes available for use in this country at the present time, whereas Uncle Sam would need approximately 87,248 wagons and ambulances for an army of 2,240,000 men. It points out the popularity of four-wheel drive in the European war and suggests that the government test the scheme by trying it out in a small way—appropriate say \$500,000 to subsidize 1,000 motor vehicles of the Quad type and give a small yearly appropriation thereafter to guarantee their being kept in condition for war needs.

"What would Uncle Sam do if an unkind fate should suddenly plunge the United States into a war with either of the allied forces in the present European and Asiatic strife?" says the Jeffery company.

"Naturally, to resist invasion, an army would have to be raised. Let us assume

it to consist of 2,240,000 men; not all at once, of course, but eventually, when the invader was able to land his full available strength on these shores.

"The mustering in, organizing, clothing, equipping and training of this enormous force would be a tremendous undertaking. But certainly not the least among the problems to be solved would be that of transportation.

"According to the present field service regulations of the United States army, a force of 2,240,000 men would require approximately 87,248 wagons and ambulances. Most of these would have to be acquired after war started, for there are only about 2,000 of them on hand now, including those in the hands of the regular army.

"It is certain, of course, that an invading army would bring along its own transport wagons. And in view of the wonderful mobility afforded by the motor truck in the present war in Europe, it is practically a foregone conclusion that the invader's transport wagons would be largely of the self-propelled type.

"To march such an army in mobility—

an absolute indispensability for success—Uncle Sam would have to do likewise. In one respect he would be fortunate—there are 17,000 trucks of 1½ tons capacity, 10,000 2-ton trucks and 12,000 3-ton trucks for him to pick from. These are the trucks suitable for army work that are already in commercial service in the United States. But they are not enough, and neither are they all suitable for much of the work they would be called upon to do in the event of war in this country.

"To fall back upon mules would be costly and perhaps disastrous. Look at the figures! For 87,248 wagons and ambulances, no fewer than 357,744 mules would be needed. These animals with their vehicles would need 720 miles of road space. They would eat over 5,000,000 pounds of hay a day, and about 3,240,000 pounds of grain. This forage alone would occupy over half a million cubic feet for 1 day's consumption—and the feed bill would total about \$83,000 a day, which is \$2,500,000 a month, or about \$30,000,000 a year! Surely, then, it would have to be motor trucks that would have to be used."

## Where Mistakes Are Made in Selling Motor Trucks

BOTH the buyer and the seller started the process of motor truck installation on false premises. The buyer judged everything in the light of the horse, the dollar-and-cent cost basis. He knew what it cost him to make his delivery by horses, or thought he did, and he insisted on knowing in advance just what the motor truck would cost. Foolishly the average truck salesman accepted the challenge and with unbounded confidence in his product resorted to the most fanciful claims. His zeal outstripped the mechanical perfection of his product, and the result was a lot of unfilled promises which created a serious and deeply entrenched prejudice his successors have been trying ever since to eradicate. Neither buyer nor seller discovered until after much experience that the motor truck is not necessarily a creature of dollar-and-cent saving; especially if the equipment is so common a misfit as it proves to be in hasty installations."

In these words Ellis L. Howland, secretary of the Motor Truck Club of America, spoke on the subject of "Practical Ideals in Electric Vehicle Promotion" before the Electric Vehicle Association of America at its monthly meeting September 30. In further putting practical ideals for the promotion of the electric vehicle before his auditors, Mr. Howland claimed that the criterion for judging motor trucks should

be efficiency first, and economy of operation second, rather than meeting everything on a dollar cost basis, in which often it is impossible to get actual horse costs for comparisons.

Mr. Howland took occasion to lay many other practical ideals before the association on the question of promoting electric sales of trucks. "Salesmanship," he said, "is the art of changing people's mind, but I would add 'and keeping them changed.' Motor trucks are not sold unless they stay sold. With all the educational effort to convince the business man that he can more prudently use motor trucks than he can stick to his old equipment results in the sale of only one truck, and that by reason of unintelligent installation, is a constant misfit for the owner, the seller may as well call up the assignee. A few score of them have. Those who remain and hope to continue realize fully that there is mutuality of interest between the buyer and seller of motor trucks which extends far beyond the actual transaction in that the rewards of the business lie in the continued reputation of the truck for reliability and efficiency."

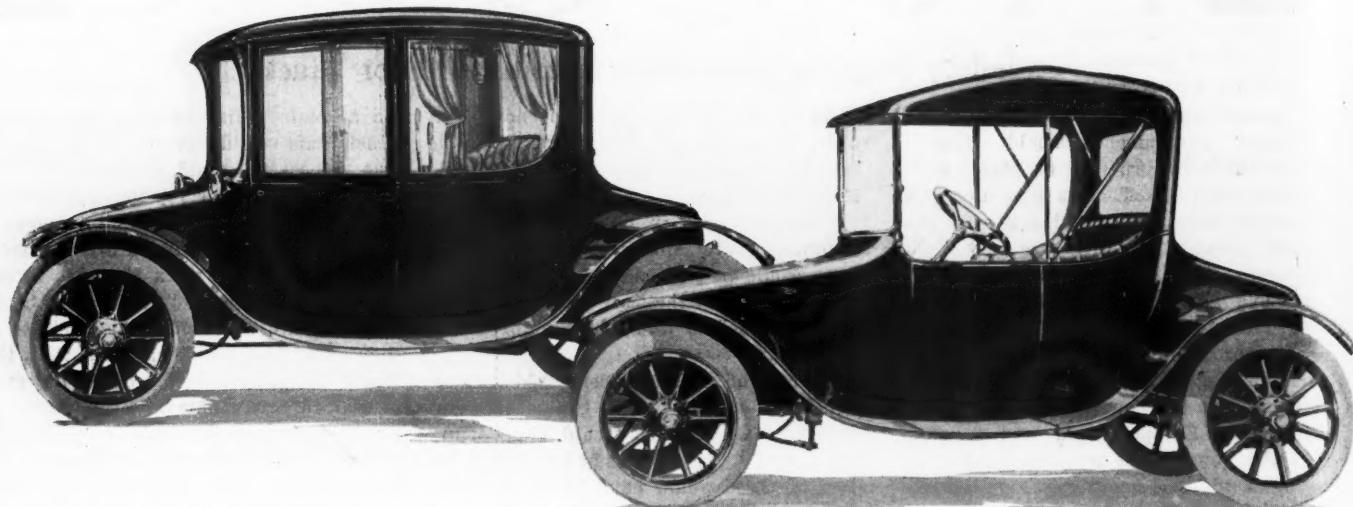
Mr. Howland struck another responsive note in the question of practical ideals for the promotion of sales of electrical trucks when, in referring to service which the manufacturer gives to the user, he said:

"The over-zealous salesman has waved the magic wand of service before the eyes of the product to such an extent that in making good his representations many a promising enterprise has gone into the great beyond with the sad train of creditors and stockholders and owners mourning. But the experience has not been lost on the survivors. Both buyer and seller have come to the common agreement that there is no more reason why the manufacturer should, at his own expense, make good every failure of the truck—possibly due to the unintelligent use of the buyer and his drivers—than that the grocer who sells me onions should stand by and see that they are properly cooked. Structural defects are the fault of the maker, but beyond that the owner ought to be responsible for his own inefficiency, though naturally he must know that the maker is ready to aid with service and a reasonable stock of duplicate parts."

Analyzing the possibility of the increased truck promotion from the buyer's viewpoint, Mr. Howland believes that buyers know much more about trucks than manufacturers and dealers give them credit for.

The arguments advanced by Mr. Howland were concurred in by most of those who attended this session of the Motor Truck Club of America.

## Milburn Electric Coupe at \$1,485 Has Worm Drive Roadster at \$1,295—Commercial Body Also



TWO OF THE BODY STYLES ANNOUNCED BY THE MILBURN COMPANY, THAT AT THE LEFT BEING THE \$1,485 COUPE AND THAT AT THE RIGHT THE ROADSTER AT \$1,295. THE WHEELBASE IS 100 INCHES

THE Milburn Wagon Co., Toledo, O., will market early this month an electric coupe at \$1,485, a roadster at \$1,295, and a delivery wagon at \$985. Taking advantage of the public's approval and acceptance of weight reduction, the Milburn company has made its vehicles of less weight than the average cars of the same type, it is claimed.

Gracefully curved body lines have been woven into these new cars and the interior appointments are only slightly at variance with those found in the more expensive vehicles, it is stated.

The coupe body is mounted on a 100-inch wheelbase chassis equipped with cantilever springs both front and rear and so constructed that a low-hung body is obtained. This body has 26-inch doors, sashless windows and an attractive interior arrangement. Both doors and windows are provided with mechanical window lifts.

A twenty-cell Philadelphia battery is used and with it the maker claims a maximum speed of 20 miles per hour is obtained and a mileage range of from 60

to 75 miles per charge. The battery rating is 180 ampere-hours. The driving mechanism consists of a General Electric motor and controller affording four forward speeds and two reverse. Horizontal levers are used for the controls. The remainder of the drive consists of a shaft to a three-quarters floating rear axle equipped with worm gears. Rear wheel brakes are internal and external fitted with Thermoid lining. A feature of this system is that an alarm will ring should the brakes be set while the power is on.

The roadster chassis specifications are almost the same as those of the coupe. The wheelbase is the same but the battery capacity is greater by 25 ampere-hours, giving a mileage limit of about 75 miles per charge. The roadster weighs less than the coupe. Another difference lies in the steering, which in the roadster is by wheel instead of by lever.

The delivery wagon is mounted on a 90-inch chassis possessing the same mechanical characteristics as the passenger cars, but the price of \$985 is for the chassis only, there being an extremely

wide range of body styles for specific conditions of service. The bodies range in price from \$100 upwards.

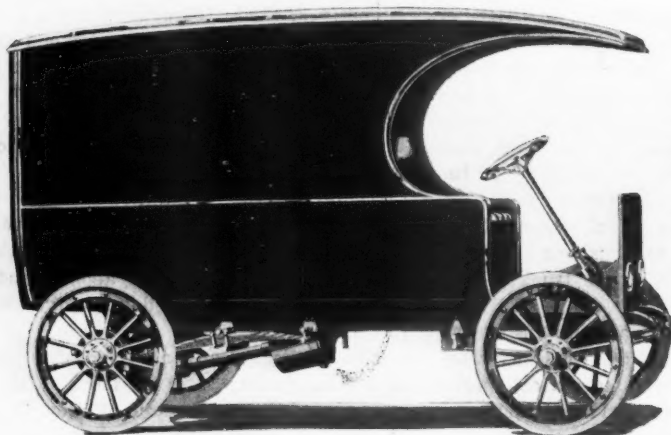
The battery capacity of the delivery is the same as the coupe, 180 ampere-hours, and the maximum speed is 17 miles per hour, the normal 14, and the mileage limit 40 to 50 on a single charge.

Equipment is the same for all three models and consists of two 6-inch front lamps, taillight, bell, meter, clock, tire pump, hydrometer, jack tools, etc., and in the case of the coupe inside corner lamps, also. The tires included as standard equipment are Goodyear electrics, 30 by 3½ or Motz cushion, 32 by 3½ at extra cost.

### BUSINESS CONDITIONS IN DETROIT

Detroit, Mich., Oct. 5—The First and Old National Banks has made an investigation of business conditions in and around Detroit and this is what it says with regard to the motor car and parts manufacturers:

"The manufacturers of motor car parts, which is a very substantial industry of Detroit, report larger sales and a greater number of employees, and generally speaking, much better business for 1914 than for the same period of 1913. Some of these companies report a curtailment in immediate shipment orders, which are, however, said to be more than offset by increased shipments to some few of the larger concerns. This, however, was felt mostly during the latter part of August, and conditions in this respect have been rapidly restoring themselves since then. The reports from the parts manufacturers would indicate that the schedule of deliveries for the next few months is considerably higher than for the same period last year.



The Milburn commercial car which has a wheelbase of 90 inches. The car has the same mechanical features as the passenger cars and the price is \$985 for the chassis only. The mileage per charge is 40 to 50



"Confidential reports to us from ten of the largest manufacturers of motor cars in and about Detroit indicate that the 1914 season for this industry has been a very satisfactory one. The number of employees August 31, as compared with the same date in 1913, has been reduced about 5 per cent. The amount of sales for the first seven months of this year, as compared with the same period last year, has increased 20 per cent. There are no labor disturbances and the situation in this respect is regarded as exceedingly satisfactory. There is a decided improvement in orders for immediate shipment, compared with those of the same date last year. This also is true as to actual shipments for the month of August,

as compared with August of the year previous.

"While it is difficult to obtain correct information regarding the export business, some of the companies exporting considerably more than others, from the best information we can obtain, the percentage of export of the total production of all the motor car manufacturers of Detroit and vicinity is between 3 and 5 per cent.

"The large surplus which most of the motor car manufacturers have been accumulating during the past few years places them in a strong position financially, and relieves the banks generally from the necessity of financing this business to any considerable extent."

## Buda Announces Two New Motors

Four and a Six Both  $3\frac{1}{2}$  by  $5\frac{1}{8}$

PROMPTED by the existing tendency to reduce weight, the Buda Co., Harvey, Ill., has put the final touches to two new block motors, a four and a six, and production of these engines now is in progress. Racy lines, neatness, accessibility and performance are the dominant features claimed for the new products, which in general design are similar. The four is known as the model RU and the six the LSU.

The horsepower curves submitted by the Buda company shows the six will develop about 58 horsepower at nearly 2,100 r. p. m., and the four about 37 horsepower at the same speed. The torque curves of both engines are good.

The dimensions, outward appearance and general construction of the motors being the same, one description will hold for both. The cylinders measure  $3\frac{1}{2}$  by  $5\frac{1}{8}$ , are cast in block and designed for unit power installation, but the regular crankcase design is offered as optional. Valves have an effective working diam-

eter of  $1\frac{1}{2}$  inch and the ends of the valve stems are hardened so as to minimize wear. The valve stem guides are bushed and the entire valve mechanism is inclosed by an aluminum cover, easily removable.

Special care has been taken in designing the engines to reduce wear from piston side thrust and inertia moment of the reciprocating parts. The pistons are unusually long and light in weight.

The front crankshaft bearing is  $2\frac{7}{8}$  by  $1\frac{3}{4}$ , the center  $2\frac{1}{4}$  by 2 and the rear  $3\frac{1}{4}$  by  $2\frac{1}{8}$ , and the rod bearings 2 by  $1\frac{1}{8}$ . The carbureter is designed to be bolted directly to the casting and provision is made for any standard type of ignition, cranking and lighting system. Lubrications by splash and pressure and cooling by centrifugal pump.

### PROSPERITY IN IOWA

Sioux City, Ia., Oct. 4.—The auction of used motor cars was one of the principal attractions at Sioux City interstate live-

stock fair this year. Many farmers and small-town persons, who came to the fair aboard a common carrier, returned in their own cars.

The paid admissions at the exposition here, which draws from northwestern Iowa, Nebraska, South Dakota and Minnesota, was \$75,000. It is estimated by passenger agents of the railroads that 35,000 fair visitors were carried into the city on special trains. About 15,000 of the paid admissions were Sioux City persons. That leaves 25,000 that must have journeyed to the fair in motor cars or other vehicles.

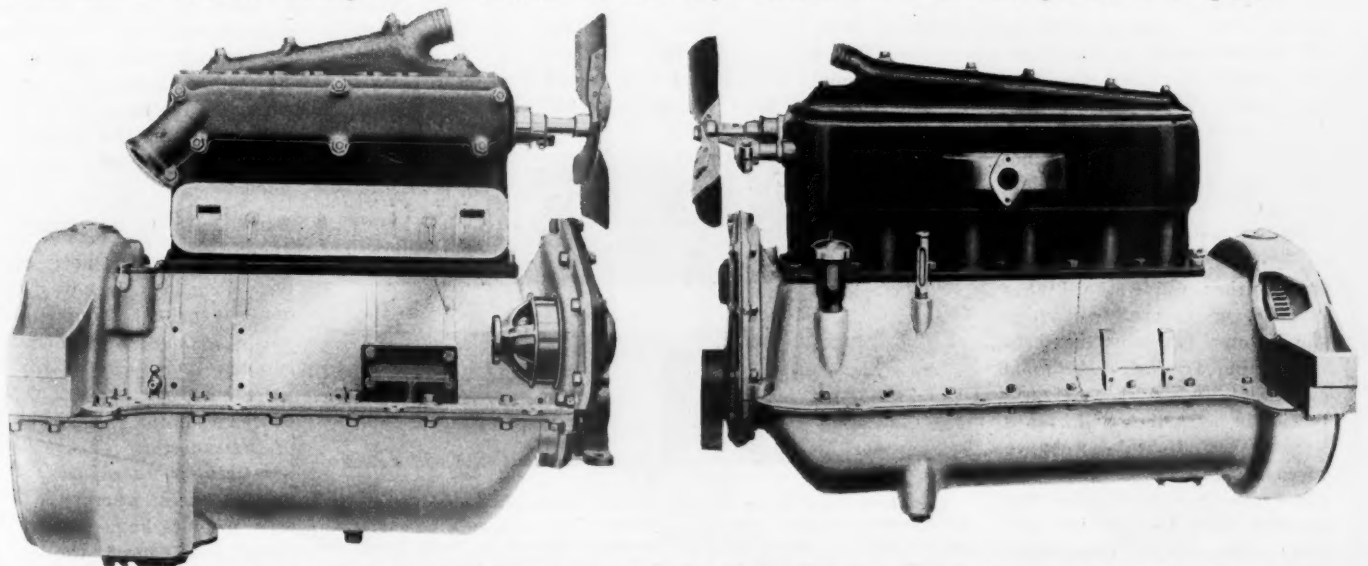
Farmers in this section all own motor cars, unless they are saving to buy.

### PHILADELPHIA ALMOST MOTORIZED

Philadelphia, Pa., Oct. 4.—Some interesting statistics regarding the growth in the use of the motor car by the city are furnished in a report submitted to City Controller Walton. The report shows that there are at the present time eighty-four motor cars of various kinds owned by the city, of which thirty-two are used by the bureau of fire, eleven by the bureau of water and ten by the bureau of police. The greater majority have been secured during the last 3 years, as the beginning of the year 1912 saw only fourteen in use. The present value of the motor equipment is \$249,980.09, compared to \$48,475 at the end of 1911. Of the \$201,505.09 spent in the last 3 years, \$53,686.54 was spent in 1912 for twenty-two cars; \$60,509.95 in 1913 for twenty-six cars, and \$87,308.60 this year for twenty-two motor cars.

### RECEIVER FOR CRESCENT COMPANY

Cincinnati, Ohio, Oct. 3.—Deputy Marshal Louis J. Huwe has been named receiver for the Crescent Motor Car Co., which has been operating a plant at Carthage, near Cincinnati, manufacturing Crescent motor cars. The bond of the receiver was fixed at \$20,000 and he was authorized to continue the operation of the plant.



TWO NEW MOTORS, A FOUR AND A SIX, ANNOUNCED BY THE BUDA COMPANY. ON THE LEFT IS SHOWN THE NEW FOUR, WHICH IS  $3\frac{1}{2}$  by  $5\frac{1}{8}$ . THE SIX ON THE RIGHT HAS THE SAME DIMENSIONS AND THE DESIGN IN BOTH CASES IS SIMILAR



# The Motor Car Repair Shop



## Care of Brakes

It is more important that a car be equipped with properly-adjusted brakes than with a motor cranker. More damage can be done by brake failure than by any other one thing, so it becomes very important that the brake bands be adjusted properly and cared for while in use.

Many forms of lined brakes are injured more by water than they are by oil; that is, water will cause poorer operation than oil. In fact, one make of lining works after being slightly oiled. After a tour, the bands require a thorough cleaning because dirt, water and even small stones may have made their way between the band and the drum. The dirt contains sand and the sand cuts the drum and also injures the lining.

Very few motorists examine the brake bands to note whether or not they are cut to any extent. Heat generated in the band when it is forced against the drum often causes band disintegration, this being especially true when the hand brake is used little. The result of this burning is shown in the illustrations on this page. Brake bands such as those shown cannot do effective work and at any moment they may give way entirely, causing considerable damage.

Drivers of racing cars, fully aware that the bands of the lined brakes can fail if they are cut as shown in the illustrations, use the hand brake occasionally. In races much heat is generated in the bands and the work required of the brakes is far in excess of that which they are called upon to do in ordinary service. Even though the brake bands may hold out through the entire race, the driver makes doubly sure by allowing the linings to become cool by using another set of brakes. Callahan, driving a Keeton on the Elgin races this year, was ordered off the course because his brakes would not hold well. The bands were old and poorly adjusted and the driver did not have his car under complete control.

Much can be learned from these drivers, who, before every race, either reline the brakes entirely or carefully examine the old ones. In most instances new lining is used. Motorists can profit by the race driver's tactics in using the hand brakes to give the foot brakes a chance to cool. On a long tour, when the brakes are used quite frequently, they become hot and wear more rapidly than when operating cool.

Owners should make it a

## The Care of Brake Bands

point to remove the bands from the drums as often as three times a year and carefully examine the bands for defects. In replacing old bands they should be given a wood cleaning in kerosene to remove all gummy material. The use of kerosene is recommended while the bands are in service, but the coal oil should not be used too freely, for if it is the bands will become dry and some makes of lining begin squeaking when dry and do not operate to their maximum efficiency.

While on the subject of brake linings, it might be mentioned that many owners of cars equipped with cone clutches can use brake lining material instead of leather for the clutch facing. The leather, while it is an efficient facing, sometimes is objected to by owners because of the attention necessary in keeping the leather swelled properly. Many owners who have used brake lining material, or asbestos woven with fine copper wire, claim the results were very good, but whether the added cost compensated for the extra wear was not stated. The asbestos composition for clutches costs about one-third more than the leather facing.

## Tires Wear When Off the Wheels

Very few, if any, drivers are aware that spare tires can be worn, even if mounted on a tire carrier, but this happens to be the case when certain types of carriers are used. Reference is made to the metal carrier which is in the form of a large scoop and into which the spare casing is placed. When the tire is set into this holder and not fastened tightly enough, the tire will rub against the metal holder and in a short time the tread will show the results of the rubbing. In cases where such carriers are used the tire should be watched and should it be difficult to keep the spare tightly in place,

cover the casing with some cloth or with a tire cover. Some owners have used the tire flap to advantage in preventing wear.

## Care of New and Old Motors

When a car is shipped from the factory its motor, while having been worked-in to some extent, still is stiff—that is, the parts such as pistons, bearing, etc., are tight. Because these parts are tight a new motor should be fed a little more oil than is ordinarily fed. Under no circumstance should the motor be raced—that is, operated with wide-open throttle for any length of time. A stiff motor will heat rapidly under such conditions, and the wear on the parts may be abnormal, due to the heating.

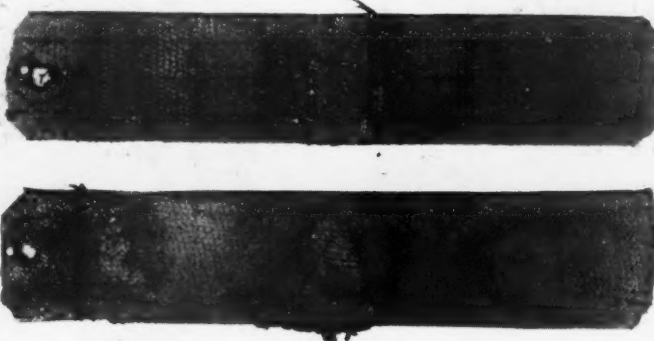
After the motor is used for about three weeks the oil supply may be cut down and the engine can safely be operated at higher speeds than before. In very old motors whose pistons or cylinders have become worn excessively the use of very heavy oil will help matters, but too much should not be fed, for then the motor will smoke. The grade of oil to be used can be determined by the piston-to-cylinder clearance. In racing cars the clearance at the bottom of the piston may be anywhere from .01 to .02, and at the top from .015 to .025 inch. Such clearance as this reduces the frictional loss between pistons and cylinder to a great extent, but in order to use that clearance successfully a heavy oil is employed, in many cases castor oil or a mixture of castor oil and ordinary heavy oil.

## Use Tire Talc Freely

When replacing tire tubes it is quite essential that talcum powder or French chalk be thoroughly distributed about the inside of the casing. This operation is greatly facilitated by the use of a small dust blower such as is used for the purpose of distributing roach powder and which can be readily obtained at any drug store. The use of a blower of this kind will result in the powder being very easily and evenly applied.

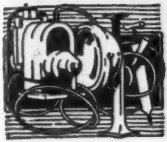
## Don't Push on Radiator Cap

When ever it is necessary to back a car into place by pushing it, about the first thing that some one will choose as the most accessible point to which his power may be applied, is that of the radiator cap on the top of the radiator. This is a poor practice, for there are a number of cases where the filler caps or pipes have been broken away and caused the person pushing upon them painful injury.



The above illustrations show how brake bands will appear when worn by excessive heating. The bands shown above are worn beyond much further safe use, but in order to determine whether the brake bands are so worn it is necessary to remove the brakes from the wheel drums. It is more important to see that the brake linings are in good condition as it is to see that the tires are inflated

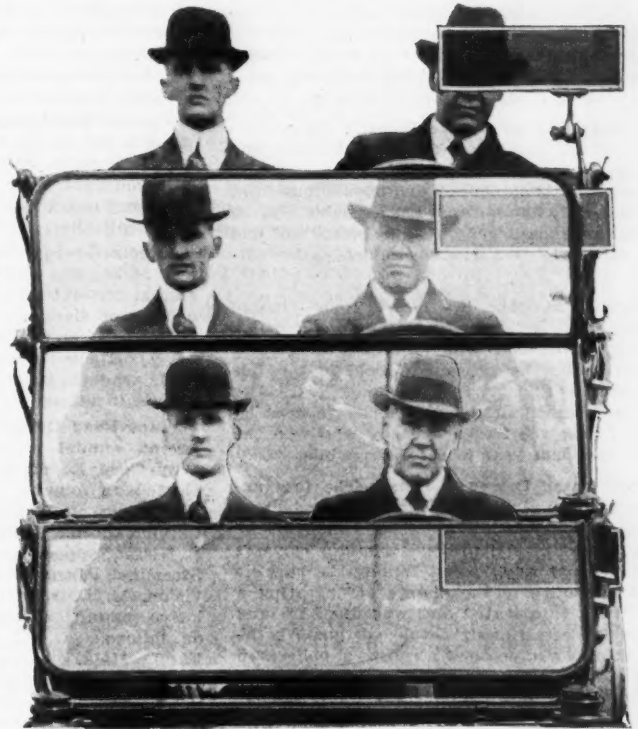




# The Accessory Corner



FIG. 1—AT THE LEFT, ROSCO LIGHTING OUTFIT AND METALCRAFT OFFSET FUNNEL. AT THE RIGHT, PERKINS ANTI-GLARE SHADE



## Gardner Starter and Gearset for Fords

A COMBINATION Ford motor cranker, selective gearset and clutch brake is announced by the Gardner Engine Starter Co., Chicago. The cranker, which is of the momentum type, was described previously in *Motor Age*. It consists essentially of a spring attached at its outer end to the cone clutch of the outfit and at its inner end to the forward end of the driveshaft. The gearset is something new in the way of a Ford accessory. It is a two-speed selective type and supplants the planetary set.

When the clutch pedal is depressed half way the gears may be shifted, but when depressed fully the motor operates freely and the clutch is held stationary by the brake, while the spring is being wound by the turning of the driveshaft. As soon as the clutch engages with the flywheel the clutch brake is released and as soon as the clutch disengages the band is applied. After the spring has been wound it may be tripped and in this way it turns over the engine. The Gardner system does not disturb the Ford flywheel magneto and it is said the installation is a simple matter. The appearance of the power plant is clean, as may be seen from the illustrations in Fig. 2. The Gardner

system complete sells for \$80.

## Rosco Lighting Outfit

A battery - lighting outfit for Ford cars has been brought out by the A. W. Rosen Co., Crosby street, New York. This outfit consists of two reflectors, two bulbs and sufficient wire for installing the system.

The bulbs may be removed from the lamps without detaching the reflectors, this being accomplished by inserting the bulbs through the back of the reflectors, as shown in Fig. 1. The Rosco sells for \$5.

## Perkins Anti-Glare Shade

Preventing the glare from the headlights of an oncoming vehicle from blinding the driver is accomplished in a simple device brought out by Perkins & Co., Grand Rapids, Mich., and called an anti-glare shade. It consists of a rectangular piece of amber-colored glass, properly supported on a bracket and so positioned that the driver can, by merely moving his head, cause the line of vision to go through the glass, as shown in Fig. 1. When not needed the driver may look ahead as ordinarily, but when glaring headlights appear he need only turn his head and look through the amber glass. It is said the shade does not interfere with driving, as one may have unobstructed vision on all sides of

the shade and through it without inconvenience. The slight movement of the head does not detract from the driving.

## Metalcraft Offset Funnel

Many owners whose cars are equipped with rear gasoline tanks often have difficulty in filling the tank, especially if a trunk on a rack is in position or if the filler cap is in an inaccessible place. To obviate this difficulty William Vogel & Bros., Brooklyn, N. Y., have brought out the offset funnel shown in Fig. 1. This funnel is made of galvanized iron and is equipped with two sectional extension spouts each 7 inches long, and an elbow as shown in the illustration. The fuel may be poured into a tank whose filler neck is 20 inches away from the funnel, it is claimed.

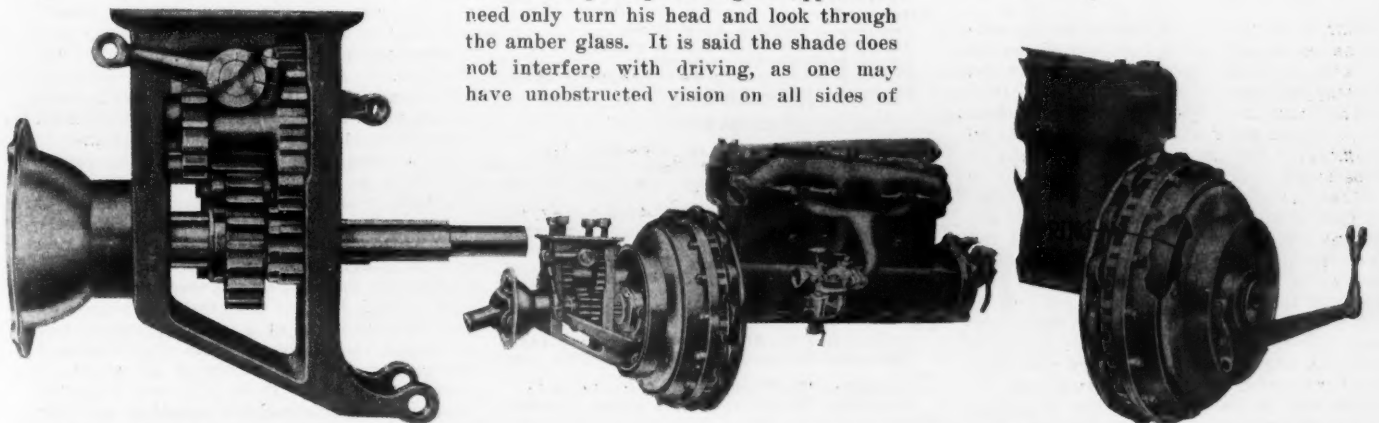


FIG. 2—GARDNER COMBINATION ENGINE CRANKER AND TWO-SPEED SELECTIVE GEARSET FOR FORD CARS



# From the Four Winds



**LINCOLN Highway Guide Issued**—The Lincoln Highway Association has issued a tourist guide, which shows the exact route of the Lincoln highway and the improved main connecting roads from every section.

**Abandon Albuquerque-Phoenix Race**—Owing to lack of support from the Albuquerque business men, the proposed November road race from Albuquerque to Phoenix has been called off. Races from Los Angeles and El Paso and possibly from San Diego will end at the state fair grounds Monday, November 9.

**Enters Simplex in Desert Race**—George Settle, the Los Angeles sportsman and motor racing enthusiast who entered the Simplex racer driven by Barney Oldfield in the Los Angeles to Phoenix road race last year, is to be represented in the next desert classic by Olin Davis, the San Diego boy who won the road race last year in the Locomobile.

**Intoxicated Driver Is Fined**—The first arrest and conviction in Milwaukee under the state law making it a misdemeanor for an intoxicated person to drive a motor car was effected last week when William Wertheim pleaded guilty to the charge of operating a car while intoxicated and was fined \$25 and costs. The testimony developed that Wertheim narrowly escaped striking a policeman and wound up at a telephone pole after a snaky drive along a much-used thoroughfare.

**Eight-Cylinder Car for Corona Races**—The eight-cylinder Romano special, designed and built by Jean Romano, of Seattle, probably will be a starter in the races at Corona, Cal., Thanksgiving day. The Romano is holder of the world's record for 25 miles on a dirt track, having covered the distance in 22:07½ at Portland, Ore., on July 12, lowering the former record held by Louis Disbrow by 19½ seconds. The Romano probably will be driven by Jim Parsons, two-time winner of the 100-mile race at Tacoma.

**Plan for Los Angeles Show**—The committee which has charge of the annual Los Angeles motor show, to be held in the Shrine auditorium in October, has decided to extend the dates from October 17 to 30, exclusive of Sunday. Pleasure cars are to be exhibited the first week and motor trucks are to have the floor from October 24 to 30. The motor truck show is expected to prove a feature of the exhibit. Last season there was not enough room for all the trucks entered when the show was announced. This year larger floor space will give ample room for the commercial vehicle display.

**Motor Battery Gift of Canadians**—The machine gun battery which has been raised by the Hon. Clifford Sifton and several other patriotic citizens of Canada is now fully equipped and will leave soon for Quebec. The machine guns are mounted on fifteen fast armored motor cars and will make as efficient and strong a battery as there is to be found with any of the European armies. The cars specially built for the purpose arrived at Ottawa several days ago and the guns were at once mounted. Experiments were made firing on the cars with Ross rifles and Lee-Enfield rifles and even at 25 yards they made scarcely a dent in the armor plate. The machines are so built that the chauffeurs and the men in charge are completely protected. The chauffeurs are all experts who have driven racing machines and are in addition expert mechanics. The battery is most complete in every detail.

The machines themselves are exceedingly powerful and are said to have a speed of 50 miles an hour. In addition there are reconnoitering motor cars and an ambulance. The total strength of the force is 150 men.

**Sequoia Park Attracts Tourists**—Since the government has made it necessary for every car to register before entering the Sequoia National Park in California, 180 touring parties went into this beauty spot between April and September, 1914.

**Illinois Garage Men to Meet**—October 23 and 24 are the dates selected for the semi-annual convention of the Illinois State Association of Garage Owners at Peoria. The commercial club and garage men of Peoria have completed the program and efforts are being made to induce every garage owner in Illinois to attend.

**Want Road Dragging Law Passed**—At the second annual meeting of the Burlington Way Good Roads Association, officers were elected as follows: President, J. E. Hiltz, Burlington, Ia.; secretary, H. C. Wilhite, Greenfield, Ill.; supervisor Iowa division, A. C. Nissen; supervisor northern division, S. C. Stremmel, Macomb; supervisor southern division, M. E. Winters, Greenfield. A legislative committee was appointed by the chair, as follows: G. F. Kuhlman, Beardstown; F. J. Hein, Jacksonville; John Broeker, Beardstown; Ray Pierce, Whitehall, and Victor H. Haven, Greenfield. Resolutions were adopted favoring a state law to provide for the compulsory dragging of the roads and also the adoption by the Illinois legislature of the same road dragging law in effect in

Iowa. It was voted to hold the next meeting in Burlington, Ia., on the first Monday in August, 1915, contingent that the Burlington boosters complete the marking of every pole along the trail between Burlington and St. Paul prior to May 1 of next year.

**Big Revenue from Pennsylvania Licenses**—The Pennsylvania state highway department has issued more than 125,000 licenses up to the present time, and it is calculated that before the close of the year the number will reach 150,000. More than \$1,151,000 has been derived by the state in the sale of 1914 license tags.

**Motor Booster Tour a Success**—The second "booster tour" of Racine business men and manufacturers was held September 23 and was participated in by more than 300. Sixty-five cars headed by a brass band on a motor truck visited practically every village and hamlet in Racine county, the caravan covering 105 miles between 8 a. m. and 8:30 p. m. The first trip of this kind was undertaken in June, and so much business resulted that a second tour was instituted. Next season a trip will be taken once a month and the business of Racine county merchants thus conserved for Racine.

**Indianapolis Wars on Blinding Lights**—An ordinance which prohibits the use of blinding searchlights or headlights on motor vehicles, except when dimming veils or dimming devices are used, has been passed by the city council of Indianapolis. The ordinance carries with it a fine of not to exceed \$25 for violations. Fred I. Willis, S. M. Cooley and James L. Gavin have been named on a committee by the Hoosier Motor Club to confer with a committee from the Indiana section of the Society of Automobile Engineers to outline municipal and state legislation on the subject of blinding searchlights and headlights.

**Showman Makes Ford Work Overtime**—An itinerant motion picture showman in Wisconsin has evolved a unique scheme for adapting a Ford car to his business. Overcoming the lack of electric current in most of the villages of western Wisconsin, the man generates his own current by hooking up a dynamo with the rear wheels of his car. During the day he uses the car to make the short jumps to other towns and on arriving at his destination hangs a "For Hire" sign on the car and operates a livery until time for the evening performance. The car is rigged up to carry tents, picture outfit, etc.

**Overland Defeats Railroad Train**—Word has been received by the Willys-Overland Co. that in a trial between the regular mail train running between Johannesburg and Durban, in South Africa, and an Overland stock car, the latter made the entire route of 840 miles 8 hours faster than the railroad, notwithstanding the fact that the driver of the car lost considerable time being forced to come to a dead stop, dismount, drive through, then stop and close 104 gates of ranches, all located along the route. There was an involuntary stop on Majuba hill due to a punctured tire. Public magistrates were the official timers, being present at the start and at the finish. The train and the car left Johannesburg at 8 in the evening on a Saturday for Durban, where the Overland arrived at 1:35 the following afternoon, 5 hours ahead of the train. Car and train restarted for Johannesburg together and the car arrived at the final goal 3 hours ahead of the train.

## Coming Motor Events

### SHOWS AND CONVENTIONS

October 5-10—Fall show, St. Louis.  
October 7-10—Convention of the Motor Truck Club of America, Detroit, Mich.  
October 8-10—Show, Cincinnati, O.  
October 7-10—National Convention Motor Truck Co. of America, Detroit, Mich.  
October 7-17—Electric vehicle show, Grand Central Palace, New York.  
October 17-24—Show, Pittsburgh, Pa.  
October 17-30—Show, Los Angeles, Cal.  
October 19-21—Convention of Electric Vehicle Association of America, Philadelphia.  
November 9-14—American Road Congress, Atlanta, Ga.  
January 2-9—New York show.  
January 9-16—Philadelphia show.  
January 23-30—Chicago show.  
January 30-February 6—Minneapolis show.  
February 15-20—Show, Omaha, Neb.

### CONTESTS

October 7-8—Hill climb, Newport, Ind.  
October 8—Track meet, Penn Yann, N. Y.  
October 10—Reliability run, St. Louis Automobile Club.  
October 11-12—Track meet, Rock Island, Ill.  
October 14—One-hundred mile track run, Galesburg, Ill.  
October 17—Track meet, Tulsa, Okla.  
November 3—Track meet, Brighton Beach, N. Y.  
November 8-11—Track meet, Shreveport, La.  
November 8-9—El Paso-Phoenix road race.  
November 7-8-9—Los Angeles-Phoenix road race.  
November 12—Track meet, Phoenix, Ariz.  
November 26—Corona road races, Corona, Cal.

\*Sanctioned by A. A. A.





# Among the Makers and Dealers



**NEW Tire Valve Company**—The Otto Valve Co. is the name of a new concern located at Ironton, O., for the manufacture of motor car tire valves.

**Worfolk Regal Advertising Manager**—The Regal Motor Car Co. has appointed Carlton E. Worfolk as advertising manager. Mr. Worfolk was formerly advertising manager of the H. M. & R. Shoe Co., Toledo, O.

**Henderson Sale October 15**—All the assets of the bankrupt Henderson Motor Car Co., of Indianapolis, will be sold at public auction by Samuel L. Winternitz & Co., of Chicago, October 15, the sale starting at 10 o'clock.

**Maurer Service Engineer**—The appointment of E. R. Maurer, M. E., as service engineer of the Studebaker Corp. of America, is announced by Vice-President E. R. Benson. Mr. Maurer has charge of all service, parts orders and claims at the Detroit factory and at the various Studebaker branches.

**Herreshoff Creditors to Get Dividend**—Referee in Bankruptcy Lee E. Joslyn has ordered the Detroit Trust Co., trustee for the bankrupt Herreshoff Motor Co., to pay to the creditors a dividend of 10 per cent. The trust company cannot yet state exactly what this amount will be, as there are several claims concerning which a decision has not yet been taken as to whether a dividend should be paid.

**Studebaker Is Granted Drawback**—A drawback allowance has been granted by the treasury department on the exportation of motor cars and parts manufactured by the Studebaker Corp., Detroit, Mich., in whole or in part, with the use of imported materials and parts and with the use of parts produced by domestic manufacturers in whole or in part from imported materials.

**Starts Building Motor Buses**—The Standard Arms Mfg. Co., which is located at Wilmington, Del., has begun the manufacture of motor vehicles, and under sub-contract with the Field Omnibus Co. has just delivered a 28-passenger motor bus to the Springfield Transit Co., of Springfield, Mass. Power is furnished by a gasoline engine, with electric generator set and electric motors driving the wheels. This is the second machine the company has turned out.

**To Boost Electric Vehicles**—For the purpose of demonstrating the possibilities of the modern electric vehicles, both of the pleasure car and the motor truck types, the New York Electric Vehicle Association has perfected plans for the running of a series of mileage tests during the Electrical Exposition and Motor Show to be held from October 7 to 17. These tests will be run on the board track, which is laid out each year on the third gallery of the Grand Central Palace, for the purpose of showing electric vehicles in action during the show.

**Continental Motors Plant Additions**—Large additions are being made to the Detroit plant of the Continental Motor Mfg. Co. Several new buildings have just been completed; others are under construction; and ground is just being broken for still others. Over 50,000 square feet of ground will be covered by these structures when all are finished. A new garage and steel stamping addition are already nearly ready. A wing to the heat-treating department has progressed as far as the completion of the structural steel work. This building will double this department's capacity. The largest unit of the new buildings is a continuation of the machine shop—already one of the largest structures of its kind in the world. The ex-

tension to the experimental laboratories completes the additions. At the present time work on this has just begun, the foundation alone being finished.

**Alma Company Changes Name**—The Alma Motor Truck Co., which is manufacturing the Republic motor trucks, has changed its firm's name to that of Republic Motor Truck Co., as the former name often gave way to confusion.

**Pelletier Directing Flanders' Advertising**—E. LeRoy Pelletier, former advertising manager of the Ford, Maxwell and Lozier companies, has taken charge of the advertising department of the Flanders Electric, Inc., Pontiac.

**Receiver Appointed for S. G. V. Co.**—A receiver has been appointed for the S. G. V. Co. of Reading, Pa., the action being brought by a Delaware corporation of similar name, which claims to be a creditor for \$152,891. The assets are \$390,000.

**New Monarch Sales Manager**—Z. B. Barber, until recently middle western sales manager and during 3 years the Michigan distributor of the Briggs Detroit Co., has been appointed general sales manager of the Monarch Motor Car Co., by president R. C. Hupp of that concern.

**Oshkosh Company Building New Car**—The Termaat & Monahan Co., Oshkosh, Wis., a producer of machinery, engines, etc., is about to build a car designed by A. C. Ziebell, formerly of Milwaukee. The car is equipped with a 4-cylinder Badger water-cooled motor, planetary transmission, with 42-inch tread, 96-inch wheelbase and 28-inch wire wheels. Plans for a production of the car now are being made.

**Canadian Factory Closes Down**—Because of the financial stringency resulting from the European war the motor car manufacturing plant of the Oxford Motor Cars and Foundries, Ltd., of Maisonneuve, Canada, has been closed down temporarily. The directors believe that by discontinuing production at this time they will be better fortified financially to resume operations in the spring when the sales season is at its height and at that time intend to go ahead on a much larger scale.

**To Make Pumps in Six Models**—The Berry Automobile Pump Co., which has been organized and incorporated with a capital stock of \$10,000 by Henry J. Berry, W. W. Gunn and Charles Ridder, respectively president, vice-president and secretary-treasurer, will occupy the sixth floor of the Riverside Power building, Detroit. The company will make pumps to be used by garages, motor car owners and vacuum cleaners. There will be six models of which three are patented, while a patent has been applied for a fourth one.

**Four Companies Declare Dividends**—A dividend of 1½ per cent on the preferred stock and 1 per cent on the common stock has been declared by the Westinghouse Electric Co., Pittsburgh, payable October 15 on the preferred and October 30 on the common. At a recent meeting of the directors of the Swinehart Tire and Rubber Co., Akron, O., a 6 per cent dividend was declared for the coming August 30, shows a surplus of \$137,000 after all charges, dividends and depreciations had been taken off and at the present time the company is operating at 80 per cent of its capacity. The Bower Roller Bearing Co., of Detroit, has declared its semi-annual dividend of 5 per cent. The Batavia Rubber Co., Batavia, N. Y., has de-

clared a quarterly dividend of 1½ per cent on the preferred stock and of 1 per cent on the common stock and an extra dividend of ¾ per cent on the common, payable October 1.

**Secures Site for Office Building**—The Hyatt Roller Bearing Co. has purchased a lot 165 by 161 feet on Grand boulevard and Cass avenue, Detroit, where its new office building will be erected.

**Puritan Machine Co. Enlarging Plant**—The Puritan Machine Co., manufacturer of motor car parts and general machinists, are again enlarging its plant at Tenth street and Lafayette boulevard, Detroit.

**Clement Joins Bock Bearing Co.**—Carl H. Clement, until recently chief engineer and sales manager of the Metal Products Co., Detroit, has resigned, and commencing October 1 will be on the road as sales engineer for the Bock Bearing Co., Toledo, O.

**Milwaukee Lubricant Agent Dies**—W. D. Halstead, president of the W. D. Halstead Oil Co., 318-320 East Water street, Milwaukee, a distributor of lubricants, greases, etc., died at his summer home in Lake Mills, Wis., on September 30, aged 60 years.

**Delco Foreign Agent Dead**—The death of James C. Kieffer, a foreign representative of the Delco Mfg. Co., occurred at the home of his parents in Dayton, O., on September 30 after a brief illness and a few days after he returned from Europe. Burial was at Lawrenceburg, Ind., Mr. Kieffer's former home. He was 23 years old.

**Another Factory Building for Hyatt**—In order to provide floor space for the additional machinery to be installed the Hyatt Roller Bearing Co. is erecting another factory building. The new structure is 75 by 200 feet and will comprise six stories and a basement. The building is of cement and steel construction, conforming with the general plan of the others in the group. The work now has reached the top story and the machinery is being placed on the lower floors.

**Cleveland Ford Plant to Cost \$500,000**—The announcement is made by the Ford Motor Co. to the effect that the new Cleveland assembling branch, which will be erected on East One Hundred and Seventeenth street, will cost in the neighborhood of \$500,000. Railroad tracks will be run into the second floor of the structure and the roof will be used for testing purposes.

**Organizing New Carburetor Company**—E. W. Mason, who purchased the patterns, good will, etc., of the defunct Watt Carburetor Co., of Holly, Mich., is organizing a new company which is to be located in Utica, Mich., and will manufacture the Sta-Rite carburetor. Mr. Mason is asking stockholders of the bankrupt Watt company to take the same amount of stock they held in the old company in the new one in settlement of their claims.

**Adams Bros. Truck Co. Rescued**—Through the efforts of the Findlay Business Men's Association the Adams Bros. Truck Co. will be reorganized and remain in Findlay, O. W. D. McCaughey is the receiver now. The business men's association raised \$12,500 in new subscriptions, and Murry Irwin, of the Louis Spring and Axle Co., of Jackson, Mich., will take a like amount of stock and probably become the general manager. It is the plan to settle with creditors at 20 cents on the dollar, or 40 cents in stock, rather than have the company go through an expensive receivership. The entire matter will probably be closed up this week.

# Motor Car Agencies Recently Appointed

Town	Agent	Make
Auburn, Ind.	Charles Kinsey	Hercules
Atlanta, Ga.	John M. Smith	Chandler
Alamogordo, N. M.	George B. Bent	Oldsmobile
Arctic, R. I.	B. F. Tefft, Jr.	Oldsmobile
Atlantic City, N. J.	Irwin's Garage	Oldsmobile
Akron, O.	Middlebury Auto Garage	Oldsmobile
Alliance, O.	George H. Judd	Oldsmobile
Akron, O.	Main Auto & Supply Co.	Regal
Amarillo, Tex.	Frank W. Hays	Oldsmobile
Alexandria, La.	Mrs. Lennine Smith	Oldsmobile
Austin, Tex.	Deen's Garage	Partin-Palmer
Aberdeen, Md.	Motor Sales Co.	Reo
Amarillo, Tex.	W. E. Groendycke	Dodge
Arbela, Mo.	J. L. Racey & Son	Herff-Brooks
Augusta, Ga.	J. G. Ivey	Oldsmobile
Brattleboro, Vt.	Mosher & Tucker	Oldsmobile
Burlington, Wis.	Adolf Uimer	Briscoe
Burlington, Vt.	P. T. Donovan	Oldsmobile
Beloit, Wis.	James W. Menhall Auto Co.	Briscoe
Brown City, Mich.	H. C. Stimson	Ford
Belding, Mich.	Bise & Goodman	Studebaker
Buffalo, N. Y.	Mutual Motor Car Co.	King
Buffalo, N. Y.	G. C. Barone	R.C.H.
Birmingham, Ala.	Saunders Motor Car Co.	Dodge
Baltimore, Md.	S. S. Greenwall	Saxon
Buffalo, N. Y.	Daw Electric Car Co.	Rauch & Lang
Buffalo, N. Y.	Monroe Motor Sales Co.	Velle
Berlin, N. H.	R. B. Wolf	Franklin
Bluesfield, W. Va.	John L. Crockett	Chandler
Boulder, Colo.	Wolcott & Blake	Oldsmobile
Boston, Mass.	Wheelock-Jeffery Co.	Oldsmobile
Bristolville, O.	Miller & Dilley	Oldsmobile
Bluffton, Ind.	Spitler Brothers	Saxon
Roswell, N. M.	H. T. Bailey	Oldsmobile
Boston, Mass.	W. L. Russell Co.	Regal
Bucyrus, O.	McFarland, Miller & White	Oldsmobile
Baxter, Ia.	Hager Brothers	Cole
Belchertown, Mass.	M. C. Baggs	Herff-Brooks
Brodhead, Wis.	Fleek & Knezel	Herff-Brooks
Bellevue, Ia.	Harold H. Lahmyer	Herff-Brooks
Boston, Mass.	Empire Motor Sales Co.	Empire
Boston, Mass.	Saxon Motor Car Co.	Saxon
Boston, Mass.	D. Houston	R.C.H.
Beaumont, Tex.	M. F. Yount Auto Exchange	Moon
Beatrice, Neb.	Kline Mer. Co.	Moon
Brookfield, Mo.	Barbee & Carter	Moon
Birmingham, Ala.	Chafin Auto Co.	Moon
Chicago	Trumbull Sales Co.	Detroit
Coshocton, O.	W. E. Layman	Oldsmobile
Columbus, O.	Auto Inn & Exchange	Briscoe
Columbus, O.	Buckeye Cyclecar Co.	Scripps-Booth
Columbus, O.	Buckeye Cyclecar Co.	Dayton
Columbus, O.	R. E. Klages	Trumbull
Columbus, O.	Central Ohio Paper Co.	Crick
Columbus, O.	Twyman Motor Car Co.	Inter-State
Cincinnati, O.	Peerless Garage	Chandler
Colorado Sp'gs, Colo.	Marksheffel Motor Co.	Oldsmobile
Cambridge, O.	Cambridge Motor & Storage Co.	Oldsmobile
Chicago	G. E. Holmes	Regal
Columbus, Miss.	S. L. Wright	Regal
Chapman, Kans.	Perry Frazier	Oldsmobile
Casper, Wyo.	Earl C. Boyle	Oldsmobile
Carlsbad, N. M.	R. Ohnemus & Son	Oldsmobile
Creston, Ia.	L. M. Butts	Cole
Cleveland, O.	Windemere-Euclid Garage	Oldsmobile
Collins, Miss.	W. R. Holloway	Cole
Chillicothe, Mo.	Adams & Sons Grocery Co.	Cole
Challes City, Ia.	C. M. Hansel	Herff-Brooks
Cedar Rapids, Ia.	Motor Sales Co.	Moon
Chattanooga, Tenn.	Ford Sales Co.	Koehler
Columbia, Ill.	Wenel Auto Company	Moon
Columbus, Pa.	Scholton & Fuller	Herff-Brooks
Coleman, Wis.	The Motor Car Co.	Briscoe
Coshocton, O.	F. E. Welch	Mercer
Cincinnati, O.	Lincoln Motor Car Co.	Dodge
Cincinnati, O.	Herff-Brooks Sales Co.	Herff-Brooks
Champaign, Ill.	L. J. Wiese	Cole
Columbus, Ga.	James A. Lewis, Jr.	Oldsmobile
Cordele, Ga.	Webster Motor Co.	Oldsmobile
Deming, N. H.	Deming Auto Co.	Oldsmobile
Denver, Colo.	A. T. Wilson Auto Co.	Chandler
Dayton, Ia.	Carl Johnston	Cole
Detroit, Minn.	Frazee Brothers	Franklin
Dover, N. H.	Central Garage	Oldsmobile

## PASSENGER CARS

Town	Agent	Make
Detroit, Mich.	Gadabout Sales Co.	Gadabout
Dorchester, Mass.	Proctor Brothers	Oldsmobile
Dodgeville, Wis.	E. C. Miller & Son	Briscoe
Deep River, Ia.	H. W. Hatter	Herff-Brooks
Dallas, Tex.	Munger Automobile Co.	Paige-Detroit
Des Moines, Ia.	Olsen Auto Co.	Davis
Dayton, O.	F. C. Moody	Detroit
Davenport, Ia.	Mason's Carriage Works	Woods
Douglas, Wyo.	Rice Hardware & Motor Co.	Moon
Detroit, Mich.	Wm. Daughy	Franklin
Detroit, Mich.	Transportation Engineering Co.	Denby
Des Moines, Ia.	Masebach Auto Co.	Wahl
Dawson, Ga.	Lamar Auto Co.	Oldsmobile
Dublin, Ga.	J. B. Glover	Oldsmobile
Evansville, Ind.	R. D. King	Cole
Ely, Nev.	Ely Garage & Supply Co.	Oldsmobile
Elizabeth, N. J.	Franklin Auto Co.	R.C.H.
Eaton, O.	E. C. Wysong	Saxon
Eustis, Fla.	Harry S. Jones	Chandler
Evansville, Ind.	R. D. King	Cole
Everett, Mass.	Otlet Furniture Co.	Oldsmobile
East Liverpool, O.	Lincoln Motor Car Co.	Oldsmobile
Elizabeth, N. J.	Franklin Garage	Oldsmobile
Eustis, Fla.	Harry S. Jones	Chandler
Egypt, Mass.	Egypt Garage & Machine Co.	Oldsmobile
Erie, Pa.	Erie Penn Auto Co.	Chandler
El Paso, Tex.	Western Woodenware Co.	Oldsmobile
Ellsworth, Kan.	C. B. Flora & Chas. Hackenberger	Overland
Evansville, Ind.	Vanderburg Automobile Co.	Mitchell
Evansville, Ind.	L. A. Reitz	Chandler
Fostoria, O.	A. C. Ash & Son	Herff-Brooks
Fresno, Cal.	California Investment & Auto Starter Co.	Oldsmobile
Fremont, O.	John P. Smola	Krit
Fargo, N. D.	C. H. Reineke & Son	Cole
Fort Morgan, Colo.	Wittwer & Wittwer	Oldsmobile
Fond du Lac, Wis.	John D. Giddings	Oldsmobile
Greene, Ia.	Doore & Wegund	Moon
Glen Jean, W. Va.	Robt. Essex	Herff-Brooks
Grafton, Wis.	Lansing Garage	Briscoe
Greenville, O.	John W. Ludy	Westcott
Groton, N. Y.	J. H. Waterman	Regal
Grand Junction, Ia.	E. A. Caswell	Cole
Greeley, Colo.	John E. Camfield	Saxon
Greencastle, Pa.	L. H. Leiter Brothers	Saxon
Glenwood Sp'gs, Colo.	Dr. G. A. Hopkins	Oldsmobile
Greenville, O.	Central Auto Co.	Oldsmobile
Groveton, N. H.	E. C. Brown	Oldsmobile
Grafton, N. D.	J. W. McKay	Franklin
Geneseo, Ill.	Velle & Chevrolet Motor Car Co.	Saxon
Huron, O.	C. E. Rhinemiller	Oldsmobile
Hilly City, Kans.	Ivan B. Parker	Saxon
Hebron, O.	C. A. Pence	Westcott
Honolulu, Hawaii	Von Hamm-Young Co.	Franklin
Haverhill, Mass.	Renton Motor Car Co.	Oldsmobile
Harrisburg, Pa.	East End Automobile Co.	Oldsmobile
Hartford, Conn.	Stutz Motor Car Co.	Stutz
Hampton, Ia.	A. C. Bird	Herff-Brooks
Hamilton, Mo.	F. A. Hawkes	Oldsmobile
Hawkinsville, Ga.	Mobley & Parsons	Oldsmobile
Indianapolis, Ind.	Peterson-Keyes Auto Co.	Regal
Ionia, Mich.	Benedick-Buick Co.	Buick-Ford
Indianapolis, Ind.	Steinhart-Eckler Auto Co.	Dodge
Indianapolis, Ind.	Krit-Auman Auto Sales Co.	Krit
Jackson, Mich.	Weber Brothers	R.C.H.
Joplin, Mo.	Joplin Supply Co.	Moon
Jacksonville, Ill.	Andre & Andre	Saxon
Johnstown, Pa.	S. N. Hayes	Westcott
Kenton, O.	Arnett Auto Co.	Oldsmobile
Kankakee, Ill.	Frank Miller	Oldsmobile
Kirksville, Mo.	Charles C. Gardner	Saxon
Knoxville, Tenn.	Cadillac Sales Co.	Oldsmobile
Kansas City, Mo.	Western Motor Co.	Krit
Kansas City, Mo.	J. F. Jones	King
Kansas City, Mo.	Greenlease Motor Car Co.	Paige
Kansas City, Mo.	Bond Motor Co.	Briscoe
Kansas City, Mo.	Greenlease Motor Car Co.	Paige-Detroit
Lorain, O.	F. F. Burrer	Oldsmobile
Louisville, Ky.	Kentucky Automobile Co.	Oldsmobile
Las Vegas, N. M.	Charles Olfeld Co.	Oldsmobile
Littleton, N. H.	Rolfe & Downing Garage Co.	Oldsmobile
La Crosse, Wis.	Moll-Savage Motor Co.	Oldsmobile
Logan, W. Va.	J. A. Washington	Chandler
Los Angeles, Cal.	DeVaux Motor Car Co.	Herff-Brooks



# Motor Car Agencies Recently Appointed

## PASSENGER CARS

Town	Agent	Make
Los Angeles, Cal.	Harold L. Arnold	Dodge
Louisville, Ky.	Overland-Louisville Co.	Overland
Los Angeles, Cal.	Bekin-Speers Motor Co.	Haynes
Los Angeles, Cal.	Harold L. Arnold	Dodge
Lowell, Mass.	Arthur J. Cumiskey Motor Car Co.	Oldsmobile
Lancaster, Pa.	J. M. Binkley	Koehler
Lima, O.	W. E. Rudy	Oldsmobile
Logan, O.	C. R. Lutz	Ford
Laconia, N. H.	Lougee-Robinson & Co.	Oldsmobile
Lewisburg, O.	F. J. Wilson	Westcott
London, Ont.	Hendricks Garage	Chandler
Louisville, Ky.	Overland-Louisville Co.	Overland
Little Rock, Ark.	Butler Auto Co.	Chandler
Lynchburg, Va.	Piedmont Motor Co.	Saxon
London, Ont.	London Motor Sales Co.	Oldsmobile
Mt. Gilead, O.	Wm. D. Mathews	Oldsmobile
Marselles, O.	M. R. Emptage	Saxon
Montreal, Can.	J. Porier	Pathfinder
Minneapolis, Minn.	D. G. Hedderly & Son	Westcott
Minneapolis, Minn.	Northwestern Haynes Auto Co.	R. C. H.
Milwaukee, Wis.	Edwards Motor Car Co.	Dodge
Minneapolis, Minn.	Harvey E. Mack & Co.	Dodge
Mansfield, O.	Pat Gatten & Sons	Oldsmobile
Marietta, O.	Marietta Motor Car Co.	Chalmers
Medina, O.	Western Reserve Garage	Oldsmobile
Miami, Fla.	C. Benton Dean	Regal
Marfa, Tex.	D. C. Wease	Oldsmobile
Milwaukee, Wis.	Emil Estberg	Oldsmobile
Marathon, N. Y.	W. E. Seamans & Son	Regal
Manchester, N. H.	Hanover Street Garage	Oldsmobile
Minneapolis, Minn.	Choate Auto Co.	R.C.H.
Milwaukee, Wis.	Milwaukee Auto Sales Co.	Briscoe
Manchester, N. H.	Maxwell Motor Sales Co.	Maxwell
Minneapolis, Minn.	Harry J. Mich	Marmon
Miami, Fla.	C. Roy Miller	Koehler
Melrose, Ia.	L. D. Lemley	Herff-Brooks
Montreal, Canada	Seigny & Lalonde	Moon
Muscatoine, Ia.	Denham & Smalley	Koehler
Northfield, Vt.	Cross Brothers Co.	Oldsmobile
Nevada, Ia.	Knudson Auto Co.	Chandler
Newark, O.	Fred W. Simpson	Oldsmobile
Norwalk, O.	H. C. Newman	Oldsmobile
New York	Drouet & Page Co.	Pullman
Norfolk, Va.	Norfolk Garage	Moon
New Castle, Pa.	Elton Auto & Repair Co.	Cadillac
Newark, N. J.	Wallace Motor Car Co.	Cole
New Orleans, La.	American Automobile Co.	R.C.H.
Nashville, Tenn.	West H. Morton	Koehler
Omaha, Neb.	T. G. Northwall Co.	Regal
Ogden, Utah	Wotherspoon & Jost	Buick
Oshkosh, Wis.	H. Hanley	Briscoe
Omaha, Neb.	W. L. Huffman Automobile Co.	Paige-Detroit
Oakland, Cal.	A. B. Cosby Motor Co.	Premier
Ogden, Utah	James Auto Co.	Oldsmobile
Oregon, Mo.	Auto Sales Co.	Oldsmobile
Philadelphia, Pa.	Regal Sales Organization	Regal
Providence, Ky.	Ford Sales Co.	Buick
Port Arthur, Tex.	Linn & Smith	Saxon
Powhatan Pt., O.	J. E. Berry	Oldsmobile
Penn Argyll, Pa.	Joel F. Batt	Oldsmobile
Prairie du Chien, Wis.	The Harris Auto Co.	Saxon
Pittsfield, Mass.	City Garage & Sales Co.	Chandler
Pecos, Tex.	Landrum & Lynch	Oldsmobile
Pittsburgh, Pa.	Vestal Motor Car Co.	Chandler
Plattsville, Wis.	Udelhoven Motor Co.	Saxon
Pawtucket, R. I.	James A. Welch	Oldsmobile
Pittsburgh, Pa.	Buhl Regal Car Co.	Regal
Pueblo, Colo.	Pueblo Auto Co.	Oldsmobile
Perthshire, Miss.	S. D. Knowlton	Chandler
Pardeeville, Wis.	Royce Carpenter	Briscoe
Plainfield, Ill.	Goodwin & Hill	Moon
Providence, R. I.	Arthur J. Feltham	Dodge
Providence, R. I.	Jos. A. Pigeon	Herff-Brooks
Philadelphia, Pa.	Colonial Motor Co.	R.C.H.
Pleasant Hill, Mo.	Manicke & Wester	Oldsmobile
Quincy, Fla.	H. T. Sharon	Saxon
Rockport, Mass.	A. Carl Butman	Oldsmobile
Russellville, Ark.	Neal & Butler	Saxon

Town	Agent	Make
Rock Island, Ill.	A. E. Shalline	Saxon
Remington, Ind.	C. B. Johnston & Son	Franklin
Redding, Cal.	Adolph Bystle	Oldsmobile
Red Oak, Ia.	B. Peterson Garage	Moon
Richland, Ga.	Alston & Cannon	Oldsmobile
Salt Lake City, Utah	Frank Roueche	Chandler
Salt Lake City, Utah	Tom Botterill Automobile Co.	Dodge
San Francisco, Cal.	Pearson Motor Car Co.	Chandler
Sioux City, Ia.	Cole Motor Co.	Cole
Salida, Colo.	Salida Auto Co.	Oldsmobile
S. Deerfield, Mass.	E. C. Gibson	Oldsmobile
St. Mary's, Pa.	Elk Engineering Works	Franklin
San Francisco, Cal.	Reliance Automobile Co.	King
San Francisco, Cal.	Peacock Motor Sales Co.	Chandler
Shreveport, La.	Crawford, Jenkins & Booth	Regal
St. Louis, Mo.	Anselm-Ganahl Motor Car Co.	Regal
St. Louis, Mo.	Lewis Auto Co.	Chandler
Springfield, Mass.	Forest Park Garage	Oldsmobile
Silver City, N. M.	Jones, Downes & Co.	Oldsmobile
Scuttsbluff, Neb.	Edwards & Morse	Oldsmobile
San Diego, Cal.	C. W. McCabe	Dodge
Springfield, Mass.	Baxter-McKinzie Co.	Saxon
Springfield, Tenn.	J. D. Traugher	Koehler
Stockton, Cal.	Jake F. Meyer	Oldsmobile
Santa Cruz, Cal.	Hubbs & Brisac	Oldsmobile
Springfield, Mass.	P. A. Williams, Jr.	Dodge
San Francisco, Cal.	A. B. Crosby Co.	Premier
San Francisco, Cal.	Reliance Automobile Co.	King
St. Louis, Mo.	H. L. & C. G. Harrington	Partin-Palmer
St. Louis, Mo.	Wagenhals Motor Car Co.	Wagenhals
St. Louis, Mo.	C. G. and H. L. Harrington	Partin-Palmer
Sioux Falls, S. D.	C. W. Thomson	Dodge
San Diego, Cal.	Pacific Auto Co.	Stutz-Mercer-Simplex
St. Louis, Mo.	Briscoe Motor Sales Co.	Briscoe
St. Mary's, Mo.	J. F. Bartells	Moon
St. Paul, Minn.	Selby Motor Car Co.	Moon
San Jose, Cal.	Granger & DeHart	Oldsmobile
Siseton, S. D.	Stavig Brothers	Cole
Seattle, Wash.	E. T. Clarke	Kelly-Springfield
South Norwalk, Conn.	Vaast Brothers Garage	Cole
South Haven, Mich.	C. A. Harriman & Son	Maxwell
Santa Cruz, Cal.	Hubbs & Brisac	Oldsmobile
Trop, N. Y.	East Side Garage	Herff-Brooks
San Francisco, Cal.	A. B. Cosby Motor Co.	Premier
Toledo, O.	Auto Distributing Co.	Regal
Toledo, O.	Bunnell Auto Sales Co.	Oldsmobile
Toledo, O.	Lichtle Auto Co.	Chandler
Toledo, O.	Guy R. Ford	Oakland
Tulsa, Okla.	New State Auto & Supply Co.	Oldsmobile
Torreón, Mex.	E. R. Barrera	Oldsmobile
Tucson, Ariz.	S. Bowyer	Oldsmobile
Tulsa, Okla.	J. T. Forster	Chandler
Twin Falls, Ida.	Western Auto Co.	Oldsmobile
Toledo, O.	Edw. K. Burg	R.C.H.
Uniontown, Pa.	J. Y. Binns	Saxon
Viroqua, Wis.	Zityner & Fortney	Briscoe
Waterloo, Ia.	Wagner Wood Auto Co.	Oldsmobile
Wilmington, Del.	Harry R. Loose	Oldsmobile
Williamston, S. C.	James P. Gossett	Oldsmobile
Wichita Falls, Tex.	Motor Supply Co.	Oldsmobile
Waukesha, Wis.	R. E. Knowlton	Oldsmobile
Waterloo, Ia.	Peverill Motor Sales Co.	Regal
Woodsfield, O.	Troutman Garage	Oldsmobile
Wooster, O.	Warren Garage	Oldsmobile
Woonsocket, R. I.	H. F. Burdick	Oldsmobile
Wagon Mound, N. M.	B. P. Robinson	Oldsmobile
Walsenburg, Colo.	Adolph Unfug	Oldsmobile
Washington, D. C.	Semmes-Kneessl Co.	Hudson
Washington, D. C.	Semmes-Kneessl Co.	Dodge
Youngstown, O.	Regal Sales Co.	Regal
Wheeling, W. Va.	Engineering & Equipment Co.	Dodge
Worcester, Mass.	Edward E. Allen	Trumbull
Webster City, Ia.	Parkhurst & Lavender Auto Co.	Moon
Woodland, Cal.	Simpson Brothers & G. D. Simpson	Oldsmobile
Walla Walla, Wash.	Franklin Motor Car Co.	Dodge
Williamsburg, Ia.	H. A. Dunlap	Herff-Brooks
Woonsocket, R. I.	Fuller Bros.	Herff-Brooks
Youngstown, Ohio	Cartecar Sales Co.	Herff-Brooks

## COMMERCIAL CARS

Town	Agent	Make
Boston, Mass.	Victor Motor Car Co.	Vim

Town	Agent	Make
Detroit, Mich.	V. V. Green	Republic

# **SCHEBLER**

## **CARBURETOR**

### **The Heart of the Automobile**

## **Has Won Over 85% of the Official Motor Car Tests in America**

It is standard equipment on America's Official Road Race Champion—the Stutz.

It was carried by the first American car to finish this year's 500-mile Speedway Race at Indianapolis.

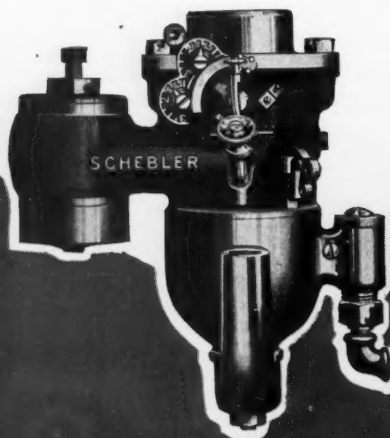
It boasts the distinction of being the only American carburetor that ever won a Speedway Race at Indianapolis. In two races out of a possible four it has come home winner.

At Elgin this year it made a better showing than any other American carburetor.

It holds the world's 337-hour record for power, economy, flexibility and endurance.

It gives just as satisfactory results in everyday service as it does on the speedway.

**WHEELER & SCHEBLER**  
INDIANAPOLIS INDIANA





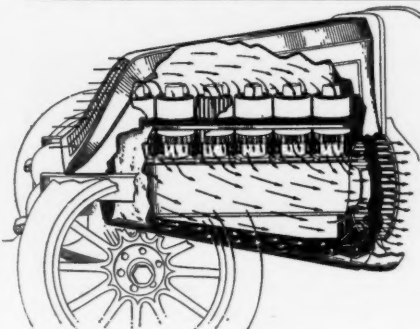
# 116 cars in all parts of the country were driven 100 miles on low gear on Sept. 24th. They were Franklin Six-Thirty's with the Franklin Direct Air-Cooled Motor

EACH test was officially certified to. Each route was chosen with the one idea of giving direct air-cooling the hardest test. The summits of such places as Mt. Tom, Mt. Hamilton, Wilson's Peak, Giant's Despair, Lookout Mountain, Mt. Wachusett, Tenderfoot Hill, and many others were the finishing points for different dealers.

Examine the statistics, all of which have been sworn to by two officials, one from an automobile club and one from the press.

## CERTIFIED RECORDS

Name of City	Dealer's Name	Time in Hours and Minutes	Gals. Oil Used	Temperature	Weather and Road Conditions
Abilene, Tex.	C. B. Manly	8:56	.66	60°	Fair
Akron, Ohio	A. Auble, Jr.	9:15	.46	64°	Mud
Albany, N. Y.	C. G. Heck	8:03	.96	62°	Clear
Amboy, Ill.	A. Aschenbrenner	9:57	.86	65°	Clear
Atlanta, Ga.	W. M. Hull	8:45	.76	64°	Heavy
Auburn, N. Y.	G. H. Leonard	8:40	.85	58°	Muddy
Baltimore, Md.	W. F. Kneip	9:46	1.8	82°	Bad
Bar Harbor, Me.	Fred L. Savage	10:04	.50	80°	Rough
Billings, Mont.	Arthur Barth	9:07	1.3	80°	Fair
Binghamton, N. Y.	S. H. Lewis	9:00	.8	80°	Muddy
Boston, Mass.	O. A. Lawton	8:48	1.6	87°	Clear
Bridgeport, Conn.	Arthur L. Clark	8:18	1.2	84°	Clear
Buffalo, N. Y.	Geo. Ostendorf	8:35	2	56°	Rain
Calgary, Alberta	A. F. Williams	8:50	.3	80°	Clear
Canton, Ohio	Geo. W. Belden	9:30	.7	65°	Fair
Carbondale, Pa.	S. F. Carpenter	9:00	1.2	62°	Rough
Carthage, Mo.	A. L. Caulkins	8:57	1.5	75°	Clear
Carthage, N. Y.	C. W. Shaffer	8:30	1.6	66°	Heavy
Cherokee, Ia.	W. R. Johnson	8:50	.9	58°	Fair
Chicago, Ill.	F. H. Sanders	8:24	1	58°	Clear
Cincinnati, Ohio	N. Samuel	7:42	1.2	67°	Fair
Cleveland, Ohio	R. H. Eckenroth	7:57	.9	68°	Clear
Colo. Spr'gs, Colo.	G. W. Blake	9:50	.9	65°	Hilly
Columbia, S. C.	Wm. Gibbes	8:18	1.3	80°	Showers
Columbus, Ohio	O. C. Belt	8:19	.8	54°	Rain
Concord, N. H.	W. E. Darrah	7:44	.9	92°	Clear
Cortland, N. Y.	J. A. Farrell	8:12	1.3	57°	Mud
Cumberland, Md.	A. E. Glisan	9:30	1.3	67°	Rain
Dallas, Texas	W. G. Langley	9:30	1.2	67°	Clear
Dayton, Ohio	F. B. Heathman	9:30	.7	64°	Fair
Denver, Colo.	F. C. Cullen	9:45	1	63°	Clear
Detroit, Mich.	W. J. Doughty	7:55	2.5	53°	Rain
Duluth, Minn.	J. D. Peacha, Jr.	9:28	1	44°	Bad
Eau Claire, Wis.	E. R. Wood	9:45	1.3	62°	Windy
Elizabeth, N. J.	F. V. Price, Jr.	8:34	1.5	86°	Hot
Erie, Pa.	John Griffith	9:40	1.2	80°	Muddy
Fall River, Mass.	Ernest Place	8:12	.9	88°	Hot
Forsyth, Mont.	Jack Lindberg	10:00	1	75°	Fair
Fort Dodge, Ia.	J. W. Crouse	9:15	.8	52°	Clear
Fort Plain, N. Y.	A. A. Walrath	8:45	2	58°	Fair
Galesburg, Ill., Car 1	N. T. Byram	8:15	1.3	70°	Clear
Galesburg, Ill., Car 2	E. T. Byram	8:42	1.3	70°	Clear
Geneva, N. Y.	W. W. McCarroll	8:40	1.2	58°	Rain
Georgetown, Tex.	T. J. Caswell	8:10	1.2	73°	Fair
Grand Forks, N. D.	J. W. Lyons	9:00	1	54°	Clear
Great Falls, Mont.	B. D. Whitten	8:40	1.1	76°	Clear
Greensburg, Pa.	E. L. Turner	8:53	2	65°	Bad
Greenville, S. C.	R. N. Tannahill	8:11	1.9	76°	Showers
Hampton, Va.	J. V. Bickford	9:08	2.5	82°	Fair
Hartford, Conn.	H. P. Seymour	9:07	1.2	80°	Clear
Hoosic, N. Y.	John Moseley	8:30	.6	60°	Muddy
Houston, Texas	R. B. White	8:57	1.5	75°	Muddy
Ishpeming, Mich.	E. R. Nelson	11:08	1	56°	Heavy
Kankakee, Ill.	F. A. Ebel	8:26	.6	74°	Fair
Kansas City, Mo.	E. P. Williams	8:34	2	71°	Fair
Kingston, N. Y.	W. M. Davis	9:20	1.6	70°	Cloudy
La Crosse, Wis.	Alfred James	9:08	.7	66°	Fair
Laramie, Wyo.	E. Lovejoy	8:52	.7	78°	Clear
Lexington, Ky.	V. K. Dodge	9:57	.7	78°	Hilly
Lincoln, Neb.	F. Ryan	10:00	.7	70°	Fair
Los Angeles, Cal.	R. C. Hamlin	10:00	1.5	62°	Clear
London, Ont.	F. G. Mitchell	8:27	1	68°	Muddy
Louisville, Ky.	G. M. Younger	9:30	1	67°	Clear
Milwaukee, Wis.	Wm. F. Sanger	9:09	.9	54°	Dry
Minneapolis, Minn.	L. A. McKay	9:30	.6	58°	Sand, hilly
Moline, Ill.	D. H. Duncan	9:22	2	67°	Clear
Montreal, P. Q.	H. Grothe	8:55	1	59°	Muddy
Nashville, Tenn.	J. W. Chester	8:52	1.2	67°	Fair
Newark, N. J.	W. L. Mallon	9:10	.9	81°	Clear
New Bedford, Mass.	S. C. Lowe	8:00	1.2	75°	Dry
Newburgh, N. Y.	Geo. Mason	8:56	.9	74°	Clear
New Haven, Conn.	C. Tolman	8:52	1.2	80°	Sand, hilly
New York City	G. A. Tisdale	8:35	.8	81°	Dry
Norwich, N. Y.	A. M. Jones	8:58	3	58°	Bad
Old City, Pa.	H. S. Phinny	7:36	.9	56°	Mud
Okla. City, Okla.	J. W. Lee	9:35	.4	74°	Clear
Pawnee, Neb.	O. H. Schenck	11:30	1	72°	Clear
Pendleton, Ore.	J. H. McCormack	9:15	.6	56°	Clear
Peoria, Ill.	S. K. Hatfield	8:59	1.2	75°	Clear
Philadelphia, Pa.	Jas. Sweeten, Jr.	6:55	1	82°	Roads bad
Phoenix, Ariz.	Geo. Hageman	9:03	1	78°	Clear
Pittsfield, Mass.	H. G. West	8:32	1.3	69°	Cloudy
Pittsburgh, Pa.	W. Murray Carr				Rains
Portland, Me.	W. M. Chellis	8:25	1	80°	Hilly
Portland, Ore.	J. C. Braly	8:48	1.2	74°	Fair
Providence, R. I.	W. L. Wilcox	9:00	1.3	80°	Clear
Putnam, Conn.	O. C. Bosworth	8:05	.8	66°	Fair
Redlands, Cal.	B. H. Hatfield	7:13	.9	92°	Fair
Rochester, N. Y.	G. R. MacCollum	8:10	1.2	80°	Rain
Rockford, Ill.	L. J. Thies	8:40	1.1	68°	Hills
St. Louis, Mo.	J. B. Dryer	10:32	1.1	72°	Hills
St. Paul, Minn.	A. H. Clark	9:05	1.5	48°	Fair
San Angelo, Tex.	M. C. Ragdale	9:02	.8	62°	Fair
San Antonio, Tex.	L. F. Birdsong	8:58	1.2	86°	Fair
San Diego, Cal.	W. S. Smith	9:30	1.6	76°	Fair
San Francisco, Cal.	J. F. McLain	8:45	1.6	70°	Bad
Saranac Lake, N.Y.	E. E. Bellows	9:20	1.2	60°	Rain, hilly
Scranton, Pa.	O. D. DeWitt	8:40	1.4	61°	Rough
Seattle, Wash.	W. A. Wicks	9:22	1.2	56°	Fair
Sharon, Pa.	C. H. Wiltse	8:38	1.2	60°	Muddy
Shreveport, La.	W. H. Johnson	7:30	2.1	66°	Clear
Sioux City, Ia.	T. Murphy	8:55	1.0	85°	Fair
Sioux Falls, S. D.	Knapp Brown	8:58	1.2	73°	Fair
Springfield, Ill.	H. D. Park	10:00	1.0	85°	Fair
Springfield, Mass.	W. F. Anderson	7:40	.5	86°	Fair
Springfield, Mo.	H. E. Seeley	9:34	.9	70°	Clear
Syracuse, N. Y.	T. A. Young	8:56	2.0	58°	Rain
Utica, N. Y.	W. W. Garabrant	10:10	1.0	58°	Bad
Walla Walla, Wash.	R. H. Tuttle	9:05	1.2	56°	Rain
Walton, N. Y.	J. R. Bryce	9:40	1.3	57°	Fair
Washington, Ia.	S. S. Smith	9:00	1.2	72°	Wet
Waterloo, Ia.	R. H. Cramer	8:20	1.4	60°	Clear
Wilkesbarre, Pa.	W. S. Lee	9:30	1.2	71°	Showers
Worcester, Mass.	F. B. Williams	9:20	1.1	86°	Clear
Yankton, S. D.	J. P. Nyberg			87°	Clear
York, Pa.	T. S. Pfeiffer	8:37	1.2	71°	Rough
Youngstown, O.	J. Stuhldreher	9:00	1.2	60°	Muddy
Averages		8:54	1.2		



Franklin Direct Air-Cooling.  
How It Works.

The complete story of the national demonstration that shows the superiority of the Franklin direct air-cooling system is given in a booklet and an illustrated newspaper.

### Weights and Prices

Touring Car, 2750 Pounds	\$2150
Roadster, 2610 Pounds	2150
Coupe, 2890 Pounds	2600
Sedan, 3045 Pounds	3000
Berlin, 3242 Pounds	3200

Prices are F. O. B. Syracuse, N. Y.  
Ask your dealer to weigh the car for you.

**Franklin Automobile Co., Syracuse, N. Y.**

## Index To Automobile Manufacturers Who Have Contracted For



This magnificent list represents not only a majority of the automobile builders of the country, but the very cream of the industry as well.

**A**

Abbott Motor Co., Detroit, Mich.  
Adams-Lancia Co., New York City.  
Allen Motor Car Co., Fostoria, Ohio.  
American La France Fire Eng. Co., Elmira, N. Y.  
American Mfg. Co., Chicago, Ill.  
Ames Motor Car Co., Owensboro, Ky.  
Apperson Bros. Automobile Co., Kokomo, Ind.  
O. Armleder Co., Cincinnati, Ohio.  
Atterbury Motor Car Co., Buffalo, N. Y.  
Auburn Automobile Co., Auburn, Ind.  
Austin Automobile Co., Grand Rapids, Mich.  
The Avery Co., Peoria, Ill.

**B**

A. C. Barley, Streator, Ill.  
Bartholomew Co., Peoria, Ill.  
Benham Mfg. Co., Detroit, Mich.  
L. Berg Carriage Co., Dallas City, Ill.  
Briggs-Detroit Co., Detroit, Mich.  
Briscoe Motor Co., Jackson, Mich.  
Brockville Atlas Auto Co., Ltd., Brockville, Ont.  
Buckeye Mfg. Co., Anderson, Ind.

**C**

J. I. Case T. M. Co., Motor Works, Racine Jct., Wis.  
Chadwick Engineering Works, Pottstown, Pa.  
Chandler Motor Car Co., Cleveland, Ohio.  
Chevrolet Motor Co., Flint, Mich.  
Colby Motor Co., Mason City, Iowa.  
F. Coleman Carriage & Harness Co., Ilion, N. Y.  
Commerce Motor Truck Co., Detroit, Mich.  
Connersville Wheel Co., Connersville, Ind.  
Corbitt Automobile Co., Henderson, N. C.  
Crane Motor Car Co., Bayonne, N. J.  
Crawford Automobile Co., Hagerstown, Md.  
Crescent Motor Co., Cincinnati, Ohio.  
Crow Motor Car Co., Elkhart, Ind.  
Jas. Cunningham Son & Co., Rochester, N. Y.

**D**

Geo. W. Davis Carriage Co., Richmond, Ind.  
De Dion Bouton, New York City.  
Dorris Motor Car Co., St. Louis, Mo.

**E**

Elkhart Carriage & Harness Co., Elkhart, Ind.  
Empire Automobile Co., Indianapolis, Ind.

**F**

Federal Motor Truck Co., Detroit, Mich.  
Fisher Motor Co., Ltd., Walkerville, Ont.  
H. H. Franklin Mfg. Co., Syracuse, N. Y.

**G**

Gramm-Bernstein Co., Lima, Ohio.  
Gramm Motor Truck Co., Lima, Ohio.  
Gramm Motor Truck Co., Walkerville, Ont.  
Great Western Motor Car Co., Peru, Ind.

**H**

Harwood-Barley Mfg. Co., Marion, Ind.  
Havers Motor Car Co., Port Huron, Mich.  
Haynes Automobile Co., Kokomo, Ind.  
Hupp Motor Car Co., Detroit, Mich.

**I**

Imperial Automobile Co., Jackson, Mich.

**J**

Jackson Motor Car Co., Jackson, Mich.

**K**

Kelly-Springfield Motor Truck Co., Springfield, Ohio.  
King Motor Car Co., Detroit, Mich.  
Kissel Motor Car Co., Hartford, Wis.  
Kline Motor Car Co., Richmond, Va.  
Knox Automobile Co., Springfield, Mass.  
Krit Motor Car Co., Detroit, Mich.

**L**

Lancia Company, Turin, Italy.  
Lenox Motor Car Co., Boston, Mass.  
Lexington-Howard Co., Connersville, Ind.  
Locomobile Company of America, Bridgeport, Conn.  
Lozier Motor Car Co., Detroit, Mich.  
L. P. C. Motor Co., Racine, Wis.  
Lyons Atlas Co., Indianapolis, Ind.

## WILLARD STORAGE BATTERY CO. CLEVELAND, OHIO

NEW YORK BRANCH: 228-230 W. 58th St.  
CHICAGO BRANCH: 2241 Michigan Ave.

INDIANAPOLIS BRANCH: 318 North Illinois Ave.

DETROIT BRANCH: 736-740 Woodward Ave.  
SAN FRANCISCO BRANCH: 821 Monadnock Bldg.

*Service Stations in All Principal Cities in the United States, Canada and Mexico*

(D S-8)



## Index—Continued To Automobile Manufacturers Who Have Contracted For



The continued use and endorsement of any product through a period of years, is the best possible guarantee of its abundant worth.

**M**

McFarlan Motor Co., Connersville, Ind.  
W. H. McIntyre Co., Auburn, Ind.  
McLaughlin Motor Car Co., Oshawa, Ont.  
Marathon Motor Car Co., Nashville, Tenn.  
Marion Motor Car Co., Indianapolis, Ind.  
Martin Carriage Works, York, Pa.  
Martindale & Millikan, Franklin, Ind.  
Mason Motor Car Co., Waterloo, Iowa.  
Mercer Automobile Co., Trenton, N. J.  
The Metz Co., Waltham, Mass.  
Mitchell-Lewis Motor Co., Racine, Wis.  
Moline Automobile Co., East Moline, Ill.  
Monarch Motor Car Co., Detroit, Mich.  
Motor Car Mfg. Co., Indianapolis, Ind.

**N**

National Motor Vehicle Co., Indianapolis, Ind.  
New Columbus Buggy Co., Columbus, Ohio.  
Nurdyke & Marmon Co., Indianapolis, Ind.  
Norwalk Motor Car Co., Martinsburg, W. Va.  
Nova Scotia Carriage Co., Kentville, N. S.  
Nyberg Automobile Works, Anderson, Ind.

**P**

Packard Motor Car Co., Detroit, Mich.  
Paige-Detroit Motor Car Co., Detroit, Mich.  
Peerless Motor Car Co., Cleveland, Ohio.  
Pilot Motor Car Co., Richmond, Ind.  
Pope Mfg. Co., Hartford, Conn.  
Premier Motor Car Co., Indianapolis, Ind.  
Pullman Motor Car Co., York, Pa.

**R**

Regal Motor Car Co., Detroit, Mich.  
Renault-Freres Selling Co., New York City.  
Reo Motor Car Co., Lansing, Mich.  
Reo Motor Car Co. of Canada, St. Catharines, Ont.  
Russell Motor Car Co., W. Toronto, Ont.

**S**

Sayers & Scoville Co., Cincinnati, Ohio.  
Seagrave Co., Columbus, Ohio.  
Simplex Automobile Co., New Brunswick, N. J.  
Singer Motor Co., Inc., New York.  
Spaulding Mfg. Co., Grinnell, Iowa.  
Speedwell Motor Car Co., Dayton, Ohio.  
Stafford Motor Car Co., Kansas City, Mo.  
Stanley Motor Car Co., Newton, Mass.  
F. B. Stearns Co., Cleveland, Ohio.  
Steel King Motor Plow Co., Detroit, Mich.  
Stegeman Motor Car Co., Milwaukee, Wis.  
Sternberg Mfg. Co., Milwaukee, Wis.  
Studebaker Corporation, Detroit, Mich.  
Stutz Motor Car Co., Indianapolis, Ind.

**T**

Touraine Co., Philadelphia, Pa.

**U**

U. S. Carriage Co., Columbus, Ohio.

**V**

Velie Motor Vehicle Co., Moline, Ill.

**W**

Wayne Works, Richmond, Ind.  
Westcott Motor Car Co., Richmond, Ind.  
Wichita Falls Motor Co., Wichita Falls, Texas.  
Willys-Overland Co., Toledo, Ohio.  
Winton Motor Car Co., Cleveland, Ohio.

**Z**

Zimmerman Mfg. Co., Auburn, Ind.

## WILLARD STORAGE BATTERY CO. CLEVELAND, OHIO

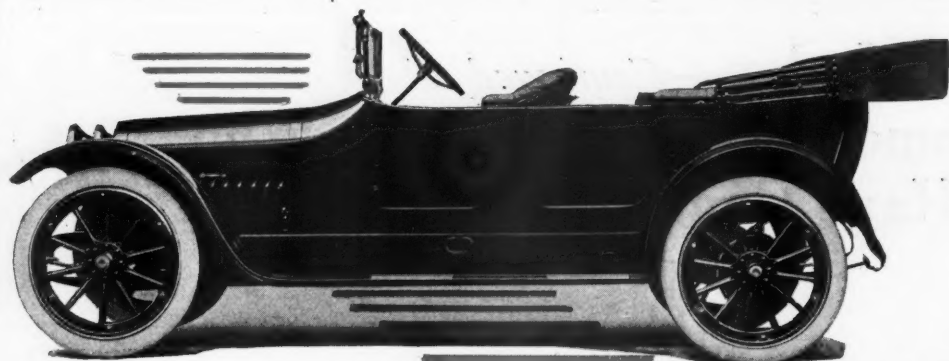
NEW YORK BRANCH: 228-230 W. 58th St.  
CHICAGO BRANCH: 2241 Michigan Ave.

INDIANAPOLIS BRANCH: 318 North Illinois Ave.

DETROIT BRANCH: 736-740 Woodward Ave.  
SAN FRANCISCO BRANCH: 821 Monadnock Bldg.

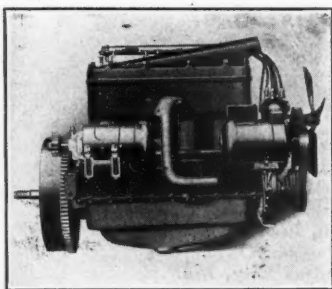
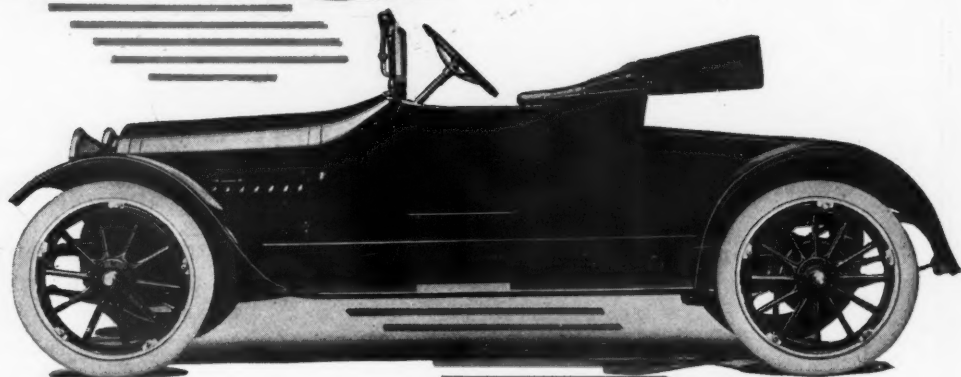
*Service Stations in All Principal Cities in the United States, Canada and Mexico*

(D S-3)

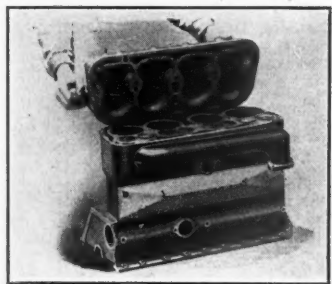


**One  
Chassis**

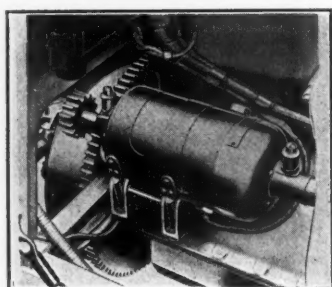
**Two  
Bodies**



Note the compactness of the simple Regal Motor, the built-in manifolds and the unity construction.



The top of the motor comes off in a minute, giving immediate access to valves and cylinders.



Note the simplicity of the starting mechanism. This single gear eliminates 40 to 60 parts used on other cars.

## The Car *YOU* Can Sell

is the car we build—one chassis, two models, the Regal Touring Car and the Regal Roadster.

Three million dollars of capital, a ten-acre Detroit plant and seven years' experience has made this Regal car the dealer's "big" asset.

Our national advertising brings the demand and a most carefully devised Sales and Service Plan helps the dealer and makes a friend of every customer.

Take your prospect and his friends out for a ride in the Regal Touring Car. Let them take in the beauty of the car from a little distance: its perfect streamlines unbroken by an external watercap; unmarred by sidelights. Explain the hidden watercap, the headlight dimmer. Demonstrate the one-man top, the electric starting and lighting. Then pile your people into the car, calling attention to the wide tonneau doors. Give them a chance to appreciate the comfort, roominess, the easy riding, the liveliness on hills, the ample brakes. Let the car talk, let your own enthusiasm wait upon theirs. When the car has made its own impression state the definite work of the Regal Service Department—how the factory is right back of every Regal that goes out.

The Regal Roadster, too, fills the eye: It's a thoroughbred in looks and action. As a two-seat car it has its own special appeal. The racy qualities of the wonderful Regal chassis, underlying the Roadster body, make their appeal to the young man who likes speed, power and endurance with beautiful lines; the professional man who likes to get about quickly. Let the graceful lines appeal to the fastidious lady motorist who judges a car by looks but who has good intuitions on the service a car should give.

We leave our Regal proposition to your good judgment and we hope you will write us promptly.

**Regal Motor Car Company, Detroit, Mich.**

**REGAL**

**\$1085**

*When Writing to Advertisers, Please Mention Motor Age.*



# A Dead One

**E**VERYTHING must move—either forwards or backwards. Nothing can stand dead still.

The centrifugal speedometer was in use long before the magnetic speedometer was even dreamed of. (So were horse cars before the trolley.) During that time it progressed wonderfully—in sales.

Then—came the *magnetic* type.

Instantly the centrifugal began to move backwards—and has suffered such a rapid and steady decline that today the tally stands as follows:

—95% of all the cars are *magnetic* equipped.

—Only 5% of all the cars are centrifugal equipped.

This must prove the *magnetic's* complete superiority.

# Stewart Speedometer

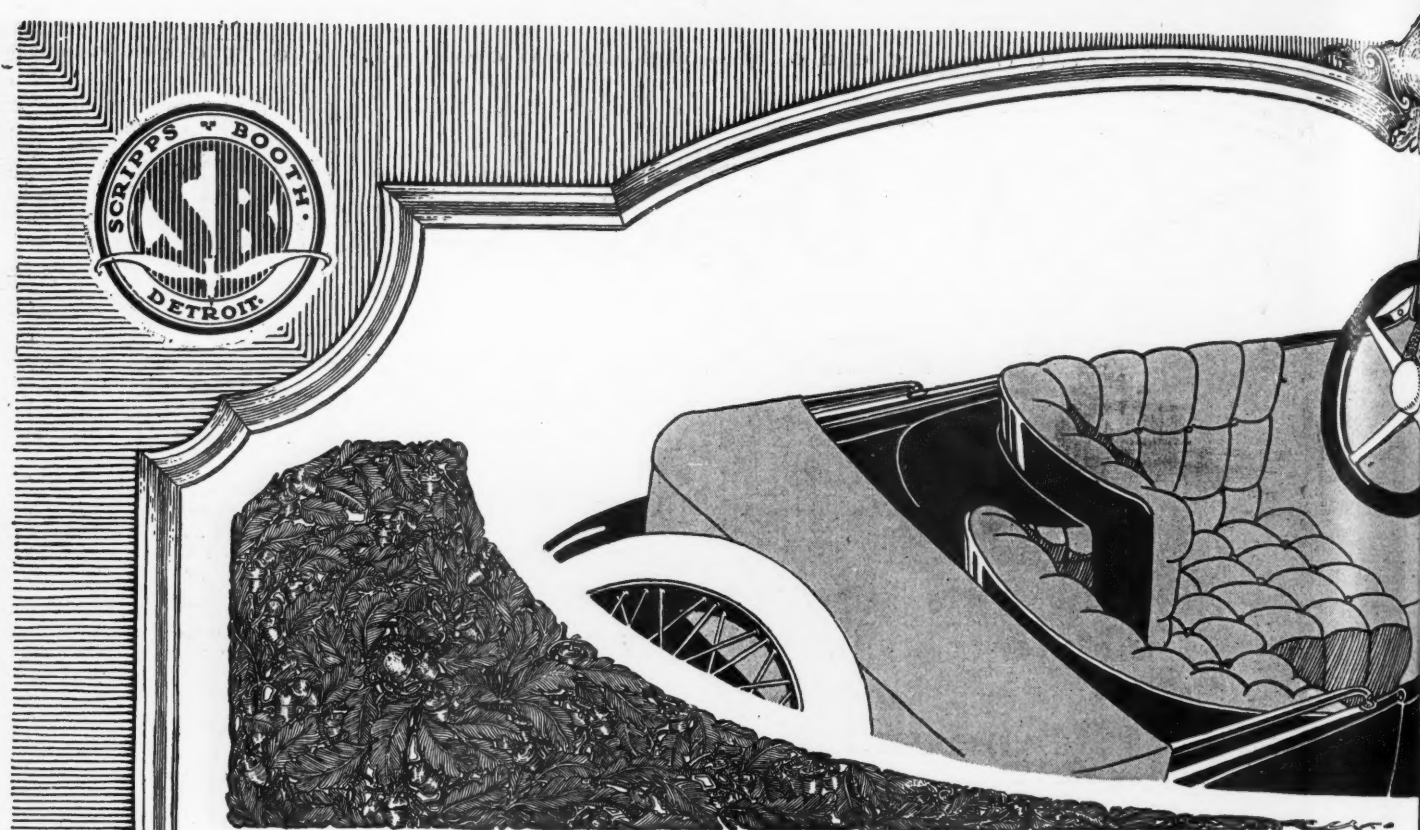
M A G N E T I C   P R I N C I P L E

Stewart-Warner Speedometer Corporation

Factories: Chicago and Beloit, Wis.

Executive Offices: 1931 Diversey Boulevard, Chicago

17 Branches. Service Stations in all cities and large towns.



## SCRIPPS-BOOTH 1915

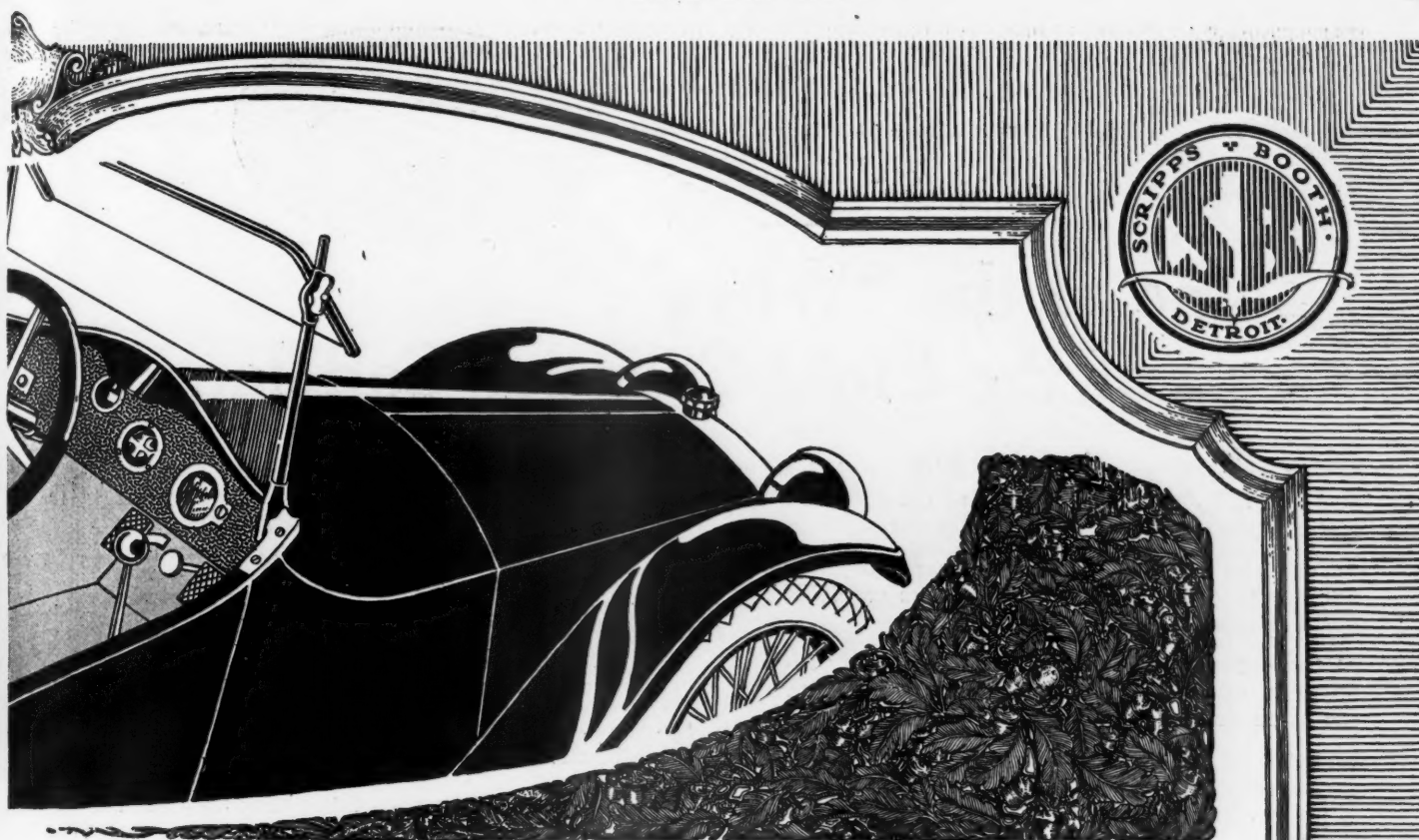
The SCRIPPS BOOTH design for 1915 is based on luxury. This is the first light car in America which has been built with the idea of first class workmanship, design, fitment and material. To say that it was in a class

with such foreign light cars as the Buggatti, Hispano-Suiza, the little Peugeot or the De Dion Bouton, would be doing the car an injustice, as it combines with the remarkable workmanship of these smaller foreign cars a completeness of equipment and detail which is found only on the most expensive automobiles.

The illustration above gives a general idea of the interior of the car. There is an extra amount of leg room, more than is ordinarily allowed in cars of twice the price. The upholstery is 9 inches deep and Turkish-tufted,—soft as a feather bed. The back of the seats are 6-inch spring cushions of the same quality. The body is 40 inches wide inside, giving roomy seating. To obtain extra luxury, greater sociability, and the advantage that either passenger can enter without disturbing the other, the seats are slightly stepped or "*de saxe*," as the French term it. This also allows a wide 21-inch pocketed door fitted with the very last word in concealed hinges and invisible door latch construction.

The steering wheel is 16 inches in diameter, with an extra large rim, made of black walnut, and polished to an exceptional degree. The webs of the wheel are polished aluminum,





while at the center of the steering wheel is a large dome push button which operates the Klaxet horn—this horn being standard equipment. A plate glass rain-vision windshield is fitted and large dimmer head lights.

The cowl dash directly in front of one gives the driver a very comfortable intimate feeling. Here are located a row of switches for the dimmer head lights, tail light, and the instrument board light. Just to the right is a sight feed oiler through which oil flows constantly while the motor is running, and further over are the ignition switch and safety plug and the flush type speedometer.

On the foot board below is situated a foot button for the electric self-starter, while the pedal controls and accelerator are seen below the cowl, together with the center gearshift lever, but this makes another story.

We are perfectly willing to give further details of the car by correspondence. If you are interested in a light car combining the last word in luxurious, maximum-comfort design, with all of the latest appliances known to minimize the trouble and work of driving a car, we would like to hear from you. If you are used to handling expensive cars, you will be especially interested in this proposition. The price is unexpectedly low. Inquiry anywhere in Detroit will satisfy you as to the standing of the SCRIPPS BOOTH ORGANIZATION.

**Scripps-Booth Company**  
Detroit



## Some of the "Whys" of the Eight-Cylinder Cadillac

The superior steadiness of the Eight-Cylinder Cadillac has its source in several causes, each and every one of them scientifically exact.

This superlative smoothness, in other words, is not left to chance, but is the positive result of positive principles.

And these positive principles exert secondary influences, each of which, in turn, contributes to the same desired end.

Translated into the simplest language, eight cylinders mean greater continuity in the generation of power. The greater the degree of continuity, the greater the smoothness, and the less the vibration, of course.

This, then, is the main and primary source of that steadiness which makes you forget that an engine is at work carrying the car forward.

The power impulses are not "almost" continuous, but actually and completely continuous, so that you are assured that the riding qualities of the car are as scientifically smooth as they can practically be made.

And then there are added to the main principle, the supplementary advantages which accrue from the very nature of the V-type engine—every one of them tending, again, to lessen vibration.

The crankshaft in the Cadillac V-type eight-cylinder engine, for instance, is but 26 1/16 inches long, between the outer ends of its rear and forward bearings.

Experienced motorists, familiar with the periodic vibration or "thrashing" which is characteristic in engines requiring a long crankshaft, will recognize immediately the beneficial effect of the lesser length.

The cam shaft, which is driven by a silent chain from the crankshaft is likewise shorter, and another tendency toward periodic vibration is thus removed.

All of the reciprocating parts, including pistons, connecting rods, valves, etc., are very much lighter, a fact which in itself contributes very largely to smoothness and absence of vibration.

Again, the "smashing" force with which the power impulses are ordinarily applied, is eliminated in this Cadillac Eight-Cylinder engine because the application of power is distributed over eight pistons—an impulse every quarter turn of the fly-wheel—another element contributing to smoothness.

The impulses overlap so completely that they melt and merge, as we have said before, one into another. When one power impulse is but half way on its stroke, another impulse begins and the impact on each is relatively light.

No severe shock or jar is communicated in these explosions. The process is not a succession of hammering blows, but rather like the touch of light and expert fingers sweeping the key board of a piano with almost incredible speed.

The net result is that unique sensation which tends to make you forget the presence of the engine—that sense of buoyance and of being borne forward by some means other than mechanical.

The basic power principle would not, of course, exercise its highest efficiency if it were not supplemented and supported by that painstaking construction in every other part of the chassis which is characteristic of Cadillac execution.

The car is not merely "a" car with a V-type eight cylinder engine, but an Eight-Cylinder Cadillac with each and every part and function in tune and harmony.

We are serenely confident that after the first ride, your own expressions of delight will go far beyond anything we may have said in these announcements, or any enthusiasm that may be expressed by the Cadillac dealer.

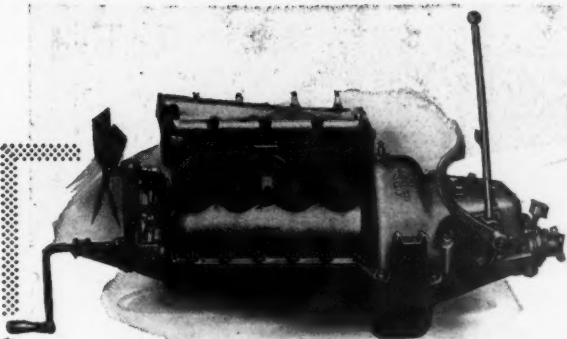
### STYLES AND PRICES

Standard Seven passenger and Five passenger cars, Four passenger Salon and Roadster, \$1975.  
Landulet Coupe, \$2500. Five passenger Sedan \$2800. Seven passenger Standard  
Limousine \$3450. Berline type Limousine \$3600. Prices F. O. B. Detroit.

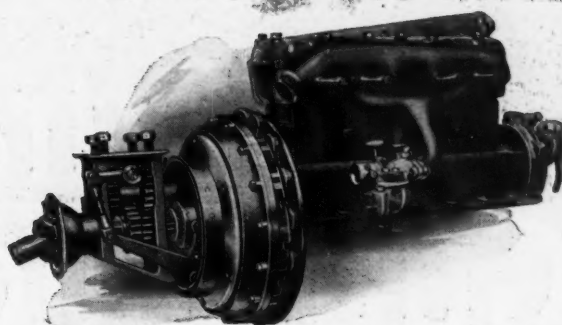
**Cadillac Motor Car Co. Detroit, Mich.**

*When Writing to Advertisers, Please Mention Motor Age.*





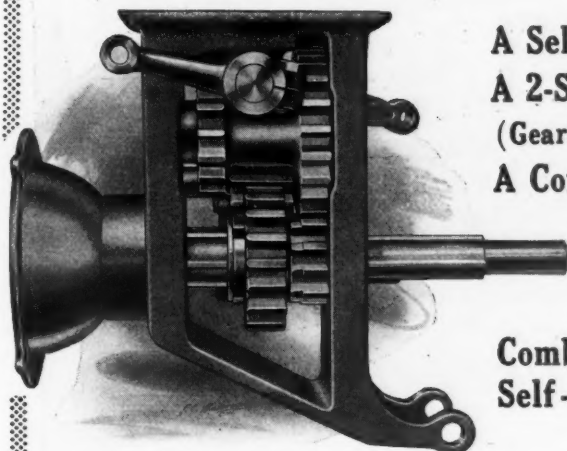
General View of Gardnerized Ford Power Plant.



Case Removed, Showing Cone Clutch, Spring Starter, and 2-Speed Sliding Gear Transmission.

## "Gardnerize Your Ford Car!"

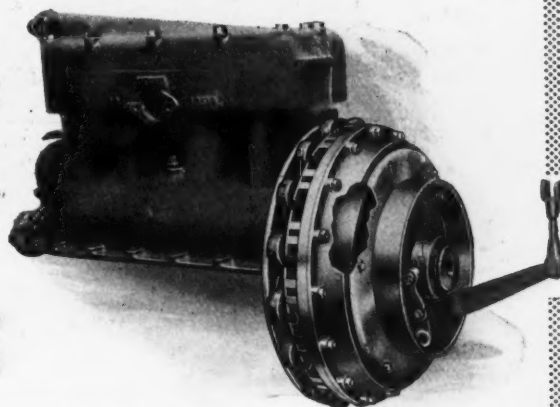
Install a Gardner Combination Starter, 2-Speed Gear Set and Cone Clutch. It will enable you to start your Ford car from the seat. Spins the motor thirty times at the rate of 800 revolutions per minute. It eliminates the old planetary type of transmission—often a source of much noise and trouble.



Right Side of Transmission.

A Self-Starter  
A 2-Speed Gear Set  
(Gears Shifted By Foot)  
A Cone Clutch

Combined in a Simple  
Self-Contained Unit

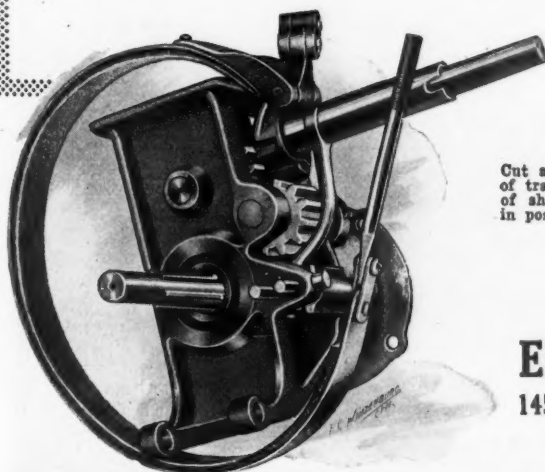


Illustrating Cone Clutch, Spring Starter, Inside of Clutch, Brake Drum, Spring Release and Clutch Lever.

The Gardner starter is entirely mechanical. No wires, no batteries, no upkeep. It works on the **momentum principle**—car momentum serving to wind a 40-foot spring, preparing it **instantly** for the next start.

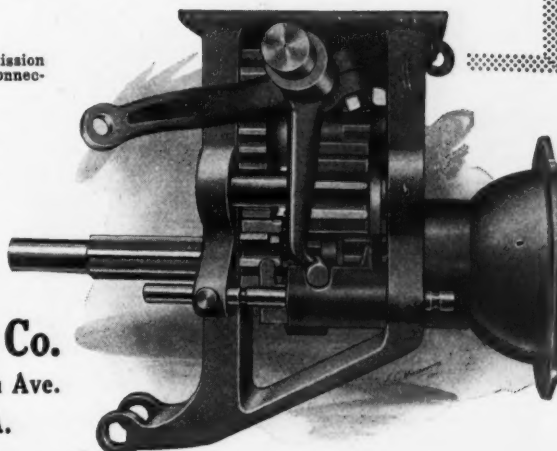
A Combination Gardner Outfit adds no additional weight to the Ford car. It can be easily placed.

WRITE FOR DETAILED INFORMATION



Cut at left illustrates transmission showing brake band and connections.

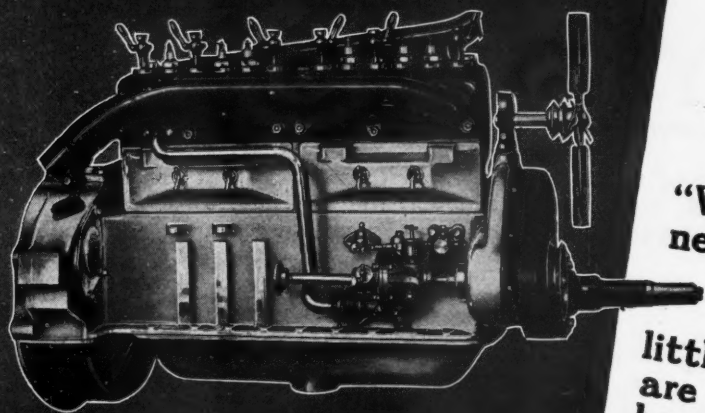
Cut at right illustrates left side of transmission, featuring method of shifting gears. Reverse gear in position for backing car.



**Gardner  
Engine Starter Co.**  
1451-1453-1455 Michigan Ave.  
CHICAGO, U. S. A.

When Writing to Advertisers, Please Mention Motor Age.

# The Extra Guarantee



Extra Experience  
Extra Value  
✱ Extra Security  
Extra Organization

Continental Motor Mfg. Co.

Largest exclusive motor  
builders in the world

Detroit, Mich.

**SECURITY &**  
AUTOMOBILE  
CONTINENTAL  
**INSURANCE**

**128,000 Miles!**

"We have been using a Continental Motor in one of our cars for several seasons past. This car has gone a little over 128,000 miles. We are returning the motor to have it overhauled."—From a communication of one of the bureaus of the U. S. Government, on file at the Detroit factory.

## **Continental Motors**

One hundred and twenty-eight thousand miles—five times around the world! Such is the pledge of mechanical security in Continental Motors.

Yet—when a repair part or a service is needed—next year or ten years from now, back of the maker of the vehicle and back of all change in the industry will still be the Continental Motor Mfg. Co., a sure and reliable source of supplies, an insurance of uninterrupted use.

Security like this is vitally important, preceding almost every other consideration in the making of a motor investment.

Men do not buy houses and lands without examining well the abstracts thereof. An abstract insures the future by guaranteeing the past. The future of the car with a Continental Motor is insured by the extra guarantee of over a hundred thousand Continentals now in use, and by more than ten years of manufacturing success.

A Continental Motor is a sure safeguard of many seasons of satisfaction, with the maximum resale value when the time finally does come for a new Continental.

Security! And over a hundred Continental-equipped pleasure and commercial cars to choose from!

Make sure of the future—insure yourself with one of these Continental-equipped cars or trucks.







## A Wider Field of Purchasers

*The car that appeals to the largest class is the profitable car for the dealer*

The hundreds of buyers who have purchased the new Oldsmobile "Light Four" represent two distinct classes.

The largest class is one entirely new to us and our dealers. It is composed of present owners of cars priced at \$900 to \$1200 and prospective owners of cars in that class. They have previously considered an Oldsmobile far beyond their reach, and have had to content themselves with makes which have not fully satisfied their desire for that pride of ownership which, heretofore, could only be obtained in a high priced car; or, unwilling to purchase a car of lower standing, they have simply refused to buy any automobile whatever.

The second class, which is showing a landslide to the Model 42, is composed of

present and prospective owners of cars priced at and around \$1800. This class appears to be composed about equally of people who find \$1800 an uncomfortable tax on their pocketbooks, and people who look very carefully at the value received from every dollar they spend.

Both classes are coming straight to the new Oldsmobile "Light Four" with all the enthusiasm of one who has searched long, and at last—found.

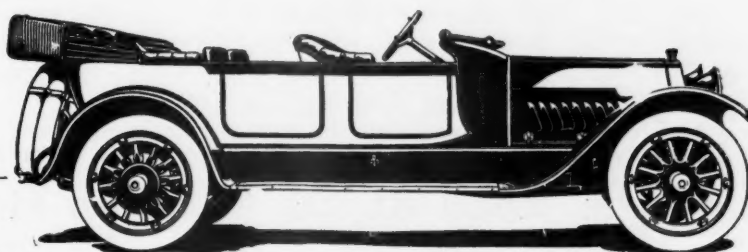
The buyers of Model 42 expect to find in this car of 112 inch wheel base all the splendid characteristics of the "Big Six"—excepting the greater size. And they are not disappointed, for it possesses such quality features as Delco Starting and Lighting

System; overhead valve motor with specially designed silencer; Circassian walnut woodwork; instruments set flush on the dash; cast aluminum foot and running boards; artillery type wheels with hickory spokes, and all other up-to-date refinements and appointments.

### To Dealers:

This new car with its wide appeal and all the splendid characteristics which make it easy to sell, should be your leader for 1915. It is your duty to investigate our sales proposition.

Catalog "A," describing the "Big Six," and Catalog "B" on the "Light Four" await your request.



**\$2975**

**The Famous "Big Six"**

**\$2975**

The Greatest Six-Cylinder Car in America is built to satisfy men whose demands approach the impossible. Its price, \$2975, is lower than any of the other five or six that give the utmost in quality.

## OLDS MOTOR WORKS, LANSING, MICH.

**New Price \$695**

With 17 New Features



## The Beautiful New 1915 Maxwell "25"

**New Price \$695**

With 17 New Features





**Holds the Road at 50 Miles an Hour**

### The Sensation of the Automobile Year

The biggest automobile value ever offered for less than \$1,000 Our production of 60,000 cars makes the new price of \$695 fully equipped (with 17 new features) possible.

**Here are the Seventeen New Features**

1.—Pure streamline body. 2.—Highly finished fenders. 3.—Large high-tension magneto. 4.—Three-quarter elliptic rear springs. 5.—The backbone on rails. 6.—Spring tension bar. 7.—Hinged front fenders. 8.—Close fitting Wind Shield. 9.—Foot rest for accelerator pedal. 10.—Tail light, with license bracket attached. 11.—Gasoline tank located under dash seat. 12.—Covers fenders with all-weather material. 13.—Improved steering gear, rack and pinion mounted on subframe under steering wheel, steering knuckle, lower knuckle mounted on axle at wheel end. 14.—Powerfully equipped, double-shock absorber equipped with shock absorbing device. 15.—Completely equipped, double-shock absorber equipped with shock absorbing device. 16.—Instrument board, carrying speedometer, voltmeter, ammeter and gasoline filler. 17.—Improved steering gear, rack and pinion mounted on subframe under steering wheel, steering knuckle, lower knuckle mounted on axle at wheel end.

18.—Improved steering gear, rack and pinion mounted on subframe under steering wheel, steering knuckle, lower knuckle mounted on axle at wheel end. 19.—Improved steering gear, rack and pinion mounted on subframe under steering wheel, steering knuckle, lower knuckle mounted on axle at wheel end. 20.—Improved steering gear, rack and pinion mounted on subframe under steering wheel, steering knuckle, lower knuckle mounted on axle at wheel end.

Powerful—fast—completely finished and beautiful in its lines—easy, comfortable and completely equipped with the Windshield and the New 1915 Maxwell at \$695 has more high priced features than ever put in an automobile before for less than \$1,000.

Selling agents in New York, Maxwell Motor Co., Inc., 100 Broadway, New York, N. Y. Selling agents in Detroit, Maxwell Motor Co., Inc., 100 Broadway, New York, N. Y.

Every car loaded by the great Maxwell Motor Co., Inc. Service Station in principal cities.

**With Electric Self-Starter and Electric Lights \$55 Extra**

The new 1915 "Wonder Car" is on display at Maxwell dealers. See it at once. If there is no dealer in your town write or wire us. Send your name and address for the New 1915 Catalog.

**Maxwell Motor Co., Inc., Detroit, Mich.**

## More than 37,000 "1915" Maxwells Ordered Within Six Weeks After August 1st

On August 1st, the double page newspaper announcement—reproduced in miniature above—announced the 1915 Model Maxwell "Wonder Car." It was published in the leading newspapers of America and was followed by Maxwell page advertising in this and other prominent national publications.

Within six weeks after August 1st, more than 37,000 Maxwells were ordered by dealers. Everything indicates that, by the time this is printed, orders for at least 50,000 Maxwell cars will have been received.

This tremendous demand proves that the public and automobile dealers have recognized the 1915 Model Maxwell as the biggest automobile value ever offered for less than \$1,000.

The Maxwell Motor Company is now shipping 800 cars a week to dealers. Within a short time, this production will be increased to 1,200 cars per week. To be sure of prompt delivery, go to the Maxwell dealer nearest you and order your Maxwell now.

### 5-Passenger Touring Car \$695

2-Passenger Roadster \$670      Maxwell Cabriolet \$840      Maxwell Town Car \$920  
Any Model Equipped with Electric Self-Starter and Electric Lights \$55 extra

## "Holds the Road at 50 Miles an Hour"

\$695

We are just at the beginning of a new season; territory is fast being allotted, but in some localities there is still room for the type of dealer we desire. Yours may still be open. Address Sales Department, Desk E.  
Which is the Most Profitable—Promises or Deliveries?

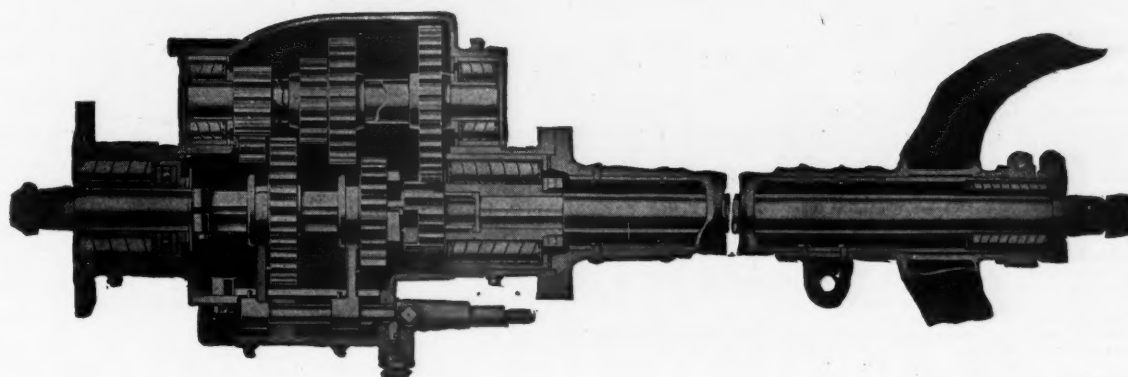
MAXWELL MOTOR COMPANY, Inc., Detroit, Mich.

\$695





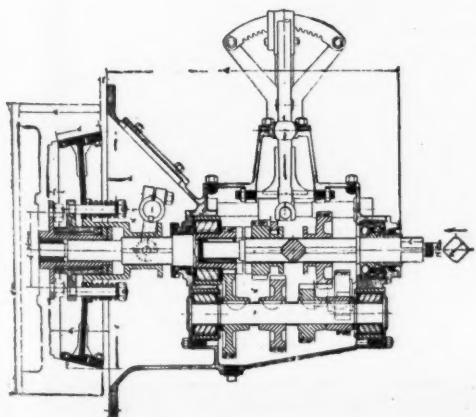
# TRANSMISSIONS



The manner in which Covert Transmissions have withstood the hard knocks of severe usage and the highly efficient and enduring service they give under the most trying conditions has made them the accepted standard in the field of transmissions.

The presence of a Covert Transmission is an assurance of satisfaction whether it be in a runabout or a massive motor truck. They are made in all sizes and different types to meet every requirement of pleasure or commercial car construction.

You are welcome at all times to the service of our engineering department for the solution of your transmission problems.



## Covert Motor Vehicle Co.

Sales Office  
Detroit, Mich.

Factory  
Lockport, N. Y.



### Gasoline Pleasure Cars

Apperson Bros. Auto. Co. Kokomo, Ind.  
 Benham Manufacturing Co. Detroit, Mich.  
 Cadillac Motor Car Co. Detroit, Mich.  
 Chalmers Motor Co. Detroit, Mich.  
 Cole Motor Car Co. Indianapolis, Ind.  
 Cunningham, Son & Co., James Rochester, N. Y.  
 Dorris Motor Car Co. St. Louis, Mo.  
 Elkhart Carriage & Harness Mfg. Co. Elkhart, Ind.  
 Franklin Manufacturing Co., H. H. Syracuse, N. Y.  
 Haynes Automobile Co. Kokomo, Ind.  
 Hudson Motor Car Co. Detroit, Mich.  
 Hupp Motor Car Co. Detroit, Mich.  
 Kissel Motor Co. Hartford, Wis.  
 Lexington-Howard Co. Connerville, Ind.  
 Locomobile Co. of America Bridgeport, Conn.  
 Lozier Motor Car Co. Detroit, Mich.  
 Lyons Atlas Co. Indianapolis, Ind.  
 Mitchell-Lewis Motor Co. Racine, Wis.  
 Moline Automobile Co. Moline, Ill.  
 Motor Car Manufacturing Company Indianapolis, Ind.  
 Moyer, H. A. Syracuse, N. Y.  
 Moon Motor Car Co. St. Louis, Mo.  
 Nordyke & Marmon Co. Indianapolis, Ind.  
 Olds Motor Works Lansing, Mich.  
 Packard Motor Car Co. Detroit, Mich.  
 Peerless Motor Car Company Cleveland, Ohio  
 Pierce-Arrow Motor Car Co. Buffalo, N. Y.  
 Pilot Motor Car Co. Richmond, Ind.  
 Premier Motor Mfg. Co. Indianapolis, Ind.  
 Pullman Motor Car Co. York, Pa.  
 Reo Motor Car Co. Lansing, Mich.  
 Russell Motor Car Co. West Toronto, Ont.  
 Simplex Automobile Co. New York, N. Y.  
 Speedwell Motor Car Co. Dayton, Ohio  
 Stanley Motor Carriage Co. Newton, Mass.  
 Stearns Co., F. B. Cleveland, Ohio  
 Studebaker Corporation Detroit, Mich.  
 Stutz Motor Car Co. Indianapolis, Ind.  
 Velie Motor Vehicle Co. Moline, Ill.  
 Wayne Works Richmond, Ind.  
 Willys-Overland Co. Toledo, Ohio  
 Winton Motor Car Co. Cleveland, Ohio

### Electric Pleasure Cars

Anderson Electric Car Co. Detroit, Mich.  
 Buffalo Electric Vehicle Co. Buffalo, N. Y.  
 Century Electric Car Co. Detroit, Mich.  
 Chicago Electric Motor Car Co. Chicago, Ill.  
 Ohio Electric Car Co. Toledo, Ohio  
 Rauch & Lang Carriage Company Cleveland, Ohio  
 Waverly Co. Indianapolis, Ind.

### Electric Commercial Cars

Anderson Electric Co. Detroit, Mich.  
 Baker Motor Vehicle Co. Cleveland, Ohio  
 Buffalo Electric Vehicle Co. Buffalo, N. Y.  
 Commercial Truck Co. of America Philadelphia, Pa.  
 General Vehicle Company Long Island City, N. Y.  
 Walker Vehicle Co. Chicago, Ill.  
 Ward Motor Vehicle Co. New York, N. Y.  
 Waverly Co. Indianapolis, Ind.

## The Companies Timken Keeps

You who have read Timken advertisements realize how important to your safety, to low upkeep cost, to the long satisfactory use of your motor car it is to have good axles and bearings.

You have been urged to ask direct about the service Timken Bearings and Axles are giving. To "talk with the man who rides on Timkens" anywhere and everywhere you find him. To "talk with the repair man" who knows all makes of cars and their parts.

In the Timken Primers, "On Bearings" and "On Axles," (sent free on request) you will read the reasons back of the good service Timken Bearings and Axles give.

The proof of the pudding is the eating. Things as well as men are known by the company they keep. And by their place in that company.

Here are named most of "the companies Timken keeps." All use Timken Roller Bearings or Timken-Detroit Axles or both, in part or throughout, in one or more of their models. A booklet list naming the Timken equipment and its location in each model will be sent with the primers.



The Timken Roller Bearing Co.  
 Canton, Ohio


The Timken-Detroit Axle Co.  
 Detroit, Michigan



### Gasoline Commercial Cars

Ahrens-Fox Fire Engine Co. Cincinnati  
 American & British Mfg. Co. Providence  
 American-LaFrance Fire Engine Co. Elmira, N. Y.  
 Anderson Coupling & Fire Supply Co. Kansas City, Kan.  
 Atterbury Motor Car Co. Buffalo, N. Y.  
 Autocar Co. Ardmore, Pa.  
 Available Truck Co. Chicago, Ill.  
 Avery Co. Peoria, Ill.  
 Bessemer Motor Truck Co. Grove City, Pa.  
 Blair Mfg. Co. Newark, Ohio  
 Bowling Green Motor Co. Bowling Green, Ohio  
 Chase Motor Truck Co. Syracuse, N. Y.  
 Croce Automobile Co. Asbury Park, N. J.  
 Cunningham, Son & Co., James Rochester, N. Y.  
 Detroit-Wyandotte Motor Co. Wyandotte, Mich.  
 Diamond T Motor Car Co. Chicago, Ill.  
 Dorris Motor Car Co. St. Louis, Mo.  
 Federal Motor Truck Co. Detroit, Mich.  
 Garford Co. Elyria, Ohio  
 General Motors Truck Company Detroit, Mich.  
 Gramm-Bernstein Co. Lima, Ohio  
 Gramm Motor Truck Co. Lima, Ohio  
 Gramm Motor Truck Co. of Canada Walkerville, Ont.  
 Hahn Motor Truck & Wagon Co., Inc. Hanburg, Pa.  
 Hupp Motor Car Co. Detroit, Mich.  
 International Motor Co. New York, N. Y.  
 Jeffrey Co., Thomas B. Kenosha, Wis.  
 Kelley-Springfield Motor Truck Co. Springfield, Ohio  
 Kissel Motor Car Co. Hartford, Wis.  
 Kleiber & Co. San Francisco, Cal.  
 Krebs Commercial Car Co. Clyde, Ohio  
 Lippard-Stewart Motor Car Co. Buffalo  
 Locomobile Co. of America Bridgeport  
 "Maccar" Truck Co. Scranton, Pa.  
 Mais Motor Truck Co. Indianapolis, Ind.  
 Martin Carriage Works York, Pa.  
 Mogul Motor Truck Co. St. Louis, Mo.  
 Moreland Motor Truck Co. Los Angeles  
 Nelson & LeMoon Chicago, Ill.  
 Nott Fire Engine Co. St. Paul, Minn.  
 Pacific Metal Products Co. Los Angeles  
 Packard Motor Car Co. Detroit, Mich.  
 Palmer Meyer Motor Car Co. St. Louis  
 Peerless Motor Car Co. Cleveland, Ohio  
 Pierce-Arrow Motor Car Co. Buffalo, N. Y.  
 Reo Motor Truck Co. Lansing, Mich.  
 Robinson Fire App. Mfg. Co. St. Louis  
 Robinson Motor Truck Co. Minneapolis  
 Sandow Truck Co. Chicago, Ill.  
 Signal Motor Truck Co. Detroit, Mich.  
 Sanford Motor Truck Co. Syracuse, N. Y.  
 Schacht Motor Car Co. of Canada Hamilton, Ont.  
 Seagrave Co. Columbus, Ohio  
 Service Motor Car Co. Wabash, Ind.  
 Stanley Motor Carriage Co. Newton, Mass.  
 Stegeman Motor Car Co. Milwaukee, Wis.  
 Shaw Livery Co., Walden W. Chicago  
 Speedwell Motor Car Co. Dayton, Ohio  
 Standard Motor Truck Co. Detroit, Mich.  
 Sternberg Mfg. Co. Milwaukee, Wis.  
 Stewart Motor Corporation Buffalo, N. Y.  
 Studebaker Corporation Detroit, Mich.  
 U. S. Motor Truck Co. Cincinnati, Ohio  
 Universal Motor Truck Co. Detroit, Mich.  
 Velie Motor Vehicle Co. Moline, Ill.  
 Wagenhals Motor Car Co. Detroit, Mich.  
 Wichita Falls Motor Co. Wichita Falls, Tex.  
 Wilcox Motor Co., H. E. Minneapolis






**5,918,000 gallons sold last year**  
**1,536,232 gallons more than 1912**

# Polarine

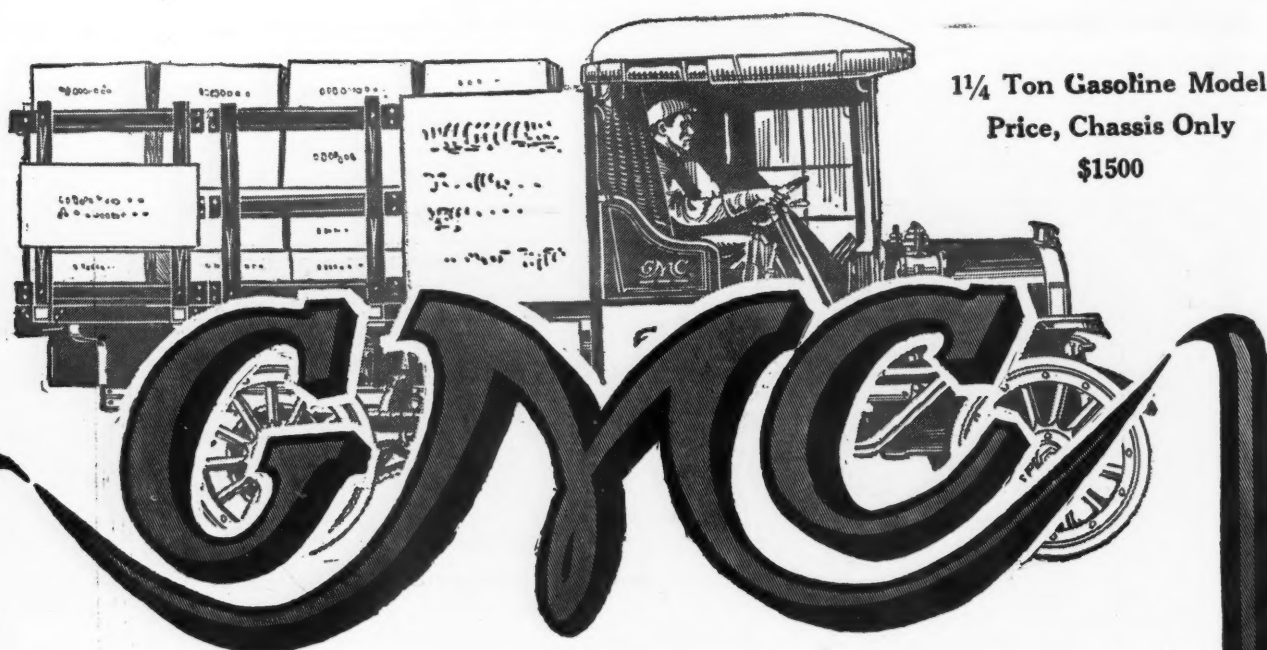
FRICION REDUCING MOTOR OIL

Maintains the correct lubricating body at any motor speed or temperature. Lubricates all makes of gasoline motors.

The constantly increasing use of POLARINE by thousands of motorists, is indisputable proof of its being the correct oil for all makes and types of motor cars, motor trucks and motor boats.



**STANDARD OIL COMPANY**  
 (AN INDIANA CORPORATION)  
 Makers of Lubricating Oils for Leading  
 Engineering and Industrial Works  
 of the World  
 (200)



**1 1/4 Ton Gasoline Model**  
**Price, Chassis Only**  
**\$1500**

GENERAL

MOTORS

COMPANY

# TRUCKS

## Mean This—

**Your choice of gasoline and electric trucks in capacities ranging from 1000 lbs. to 6 tons.**

**Trucks that fit your business and your needs.**

**Low prices based on big production and big buying power.**

**Service that satisfies.**

**Motor trucks of highest grade.**

**A big responsible truck maker with which to deal.**

GMC Trucks mean all this and more to business men of America. **You** can learn what they would mean to **your** business in improved service and bigger profits by communicating with the nearest GMC dealer or writing direct to our factory.

*For the same reason that GMC Trucks are the most profitable for business men to buy, they are also most profitable for the dealer to sell—Let us tell you why.*

## GENERAL MOTORS TRUCK COMPANY

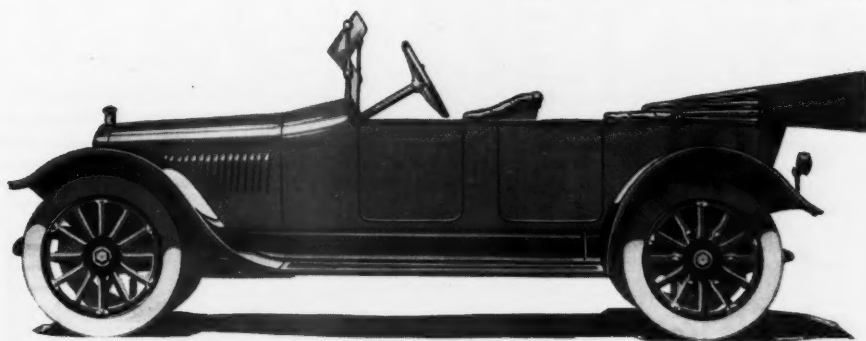
One of the Units of the General Motors Company

PONTIAC

MICHIGAN

BRANCHES—New York, Boston, Chicago, Philadelphia, Kansas City, Detroit, St. Louis





# Monarch

## A "SIX" FOR \$1250.00

125 Inch Wheel Base

Continental "6-45" Motor

It is true. For \$1250.00 you can now buy a six cylinder car that in size, power, speed, equipment and workmanship is actually an improvement over other cars selling in the \$1,500 to \$2,000 class.

We expect you to be sceptical. Such an announcement as this seems beyond reason, for other manufacturers have insisted that a car of this type could hardly be produced to sell at less than \$2,000.

*But here is the car. Below is the description. And the price is \$1250.00.*

We have accomplished it by discontinuing our other models and concentrating our facilities on producing this one "Six" in quantities. Cutting out all so-called selling talk, we simply lay the facts before you. Check over this description—compare it point by point with other cars with which you are familiar—the more carefully the better we will be pleased.

Then decide for yourself whether or not this is a most remarkable motor car value.

### Here are the Facts

Made by a concern of the highest reputation and financial standing.

The component parts are standard—of known value throughout the industry.

The motor is a Continental—as certain a guarantee of quality as to say a watch is a Howard. No better motor can be had at any price.

**SIZE**—125 inch wheel base.

**RADIATOR**—Honeycomb. Cooled by ball bearing fan.

**CARBURETOR**—Float feed—most accessible and economical.

**IGNITION**—Atwater Kent system—distributor in unit with generator.

**LUBRICATION**—Force feed by positive driven pump and splash.

**REAR AXLE**—Extra strong. Three quarter floating, specially trussed and driving through quadruple radius rods.

**STEERING**—Left hand irreversible 18" steering wheel. (Right hand for foreign trade only.)

**WHEELS**—Standard Wood with Funk demountable rims and one extra rim.

**TIRES**—33" x 4". Safety Tread on rear.

**CONTROL**—Center lever. Operates on transmission direct.

**BODY**—Latest Stream Line. Five or seven passenger with four doors—a car you will be proud to drive no matter in what company you may be placed. Divided front seat, deep Turkish tilted cushions, dull finished upholstery, give you some of luxury and easy riding qualities.

**WEIGHT**—2800 lbs., completely equipped, ready for the road.

**SPRINGS**—Rear, full elliptic, swiveled on axle and frame. Front, semi-elliptic.

**FRAME**—Pressed steel, 5" section. Reinforced rear spring supports.

**GASOLINE**—Under cowl on dash. 13 gallons capacity.

**STARTING**—Monarch Ward-Leonard starting and lighting. Double wire system. Fly wheel application. Bendix drive.

**EQUIPMENT**—Electric lighting system with generator, special two bulb lamps; electric horn; clear vision, rain vision windshield; one-man mohair top; with quick adjustable curtains; Stewart flush type speedometer; propeller drive; cowl lamp with trouble lamp attachment; tools, repair kit, pump and jack; duplex tire carrier; robe rail and foot rail.

Have you checked this description? Have you compared it with others? Can you find one single feature left out that you can

get in other cars costing from \$300 to \$500 more? We feel certain that you cannot.

But this is not enough. You can no more describe the real "character" of a car in words than you can describe a horse by saying that he has four legs, a head and a tail.

You must see the Monarch car and ride in it and drive it to fully appreciate its power, its flexibility, its smooth, easy riding qualities and the luxury and completeness of its equipment down to the minutest details.

As a buyer you simply can't afford to overlook the opportunity to secure a car at from \$300 to \$500 saving over what you would pay elsewhere for the same value.

As a dealer it would simply be bad business to overlook the opportunity to secure an agency for a car that will be without competition in this price field. Every dealer knows the trend in public demand toward the Light Six. Figure for yourself what a profit maker such a six as this will be, selling at a price that puts competition completely out of the running.

So write today for complete descriptive matter and proposition.

Perhaps a wire would be safer, for it takes no prophet to predict that dealers in every unoccupied section of the country will be competing for this unusual selling opportunity, as soon as this announcement appears.

## MONARCH MOTOR CAR CO.

R. C. HUPP PRESIDENT

DETROIT, U. S. A.

R. P. SPENCER  
Director of Sales



Spencer knows both the sales problems of the dealer and the needs of the user, from actual experience.



A. A. GEISEL  
Eastern Manager

## Introducing The Field Force of the Denby

We want you dealers everywhere to get acquainted with the men who constitute the "firing line" of the Denby sales organization.

They're good chaps to know, all of them—including the ones whose photographs we haven't room for on this page.

And they are not the ordinary type of district manager—so called—who drops in, says "how-dy-do" and then "good-bye" leaving nothing to remember him by but a trail of more or less doubtful cigars.

These men are all real truck experts—men who have sold trucks themselves, who have studied haulage problems and who have a real message to bring to live dealers. For don't forget that "Denby trucks are sold *through* the dealer, not *to* the dealer."

So when the Denbyman who happens to be covering your territory reaches your town, give him the time he wants ungrudgingly.

For he's preaching the gospel of better truck profits; and his sermon is entirely free from the flamboyant piffle that has been too common in the truck business in the past.

**Denby Motor Truck Company**  
20 Dubois Street      Detroit, Michigan



C. T. CHENEVERT  
Coast Manager



W. S. HILL  
Central Manager



B. HAVENS  
Coast Manager



BENJ. RENNARD  
Southern Manager



M. E. MCKENNEY  
Asst. Director  
of Sales

# DENBY



# RAYFIELD

## CARBURETORS

**The best way to reduce gasoline bills is to put a Rayfield carburetor on your car**

**T**HERE are a few things under the sun better than anything else of their kind, and the new Model G Rayfield is one of them.

On your own car, for example, the Model G Rayfield will save you from 10% to 50% of your gasoline bills, perhaps more.

It will give you more power, you will get more speed. There will be far more of that facility in your car to get up and away, which motorists familiarly call "kick."

### More flexibility too

Have you ever realized that you don't have to put up with a poor carburetor? Do you know that the Rayfield can be put on your car?

Yes, of course it can; and it'll make a better car out of any car you can show us. The guarantee is a money-back affair.

The installation requires only a few hours—or it can be installed and adjusted by any good mechanic.

*Ask us for a descriptive folder*

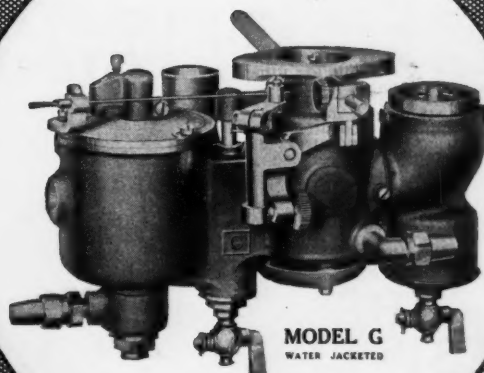
**FINDEISEN & KROPF MFG. CO.**  
2109 Rockwell Street  
CHICAGO, ILLINOIS

**BRANCHES:**

1140 Michigan Avenue,  
Chicago

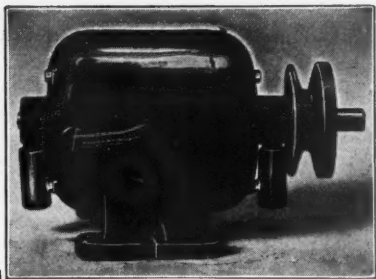
1902 Broadway,  
New York

1211 Woodward Avenue, Detroit



**MODEL G**  
WATER JACKETED

\$50.00



\$50.00

DYNAMO

*Ready For Delivery*THE  
1915

BEST-LITE

Lighting Systems

FOR

FORDS

AND

OTHER AUTOMOBILES

The most practical, complete Dynamo-Battery lighting system on the market.

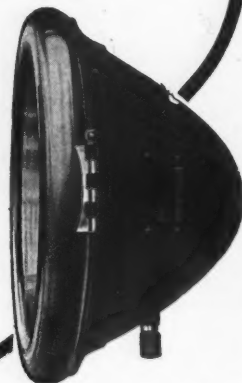
A Real Lighting System  
ABSOLUTELY GUARANTEED

Consisting of: Motor-type generator, latest design, 10 in. black and nickel double bulb head lights, 16 C. P. bulb for driving, 4 C. P. bulb for dimming and standing light, 6-80 guaranteed battery, steel battery box, tail light, dash light, switch ammeter and all necessary wiring for complete up-to-date plant. Write for catalog.

COMPLETE  
SYSTEM  
\$50

DEALERS

Write for Discount

THE  
BEST-LITE  
COMPANY4100 Best-Lite Bldg.  
NEWTON IOWA

You Don't Have to  
Raise the Cap  
to Know the  
Efficiency  
and  
Reliability  
of

ROAD  
Reg. U. S. Pat. Off.  
SMOOTHERS

Quickly Applied to Your Ford Car

¶ It's true you can see the strong, flexible steel spring and the smooth fitting piston, but the K-W trade mark is your assurance that you are getting the best in design, workmanship and material.

¶ They give comfort on the roughest roads because they combine the three essential features necessary for lasting comfort. The helical spring takes up the shock, the air chamber with its smooth working piston checks rebound, and the anti-side motion links prevent side rocking—make for your safety and save the parts of your car.

¶ Every K-W Road Smoother is thoroughly tested and perfectly built and of the right materials—high grade, heat-treated drop forgings; electric smelted, chrome vanadium steel springs (not ordinary spring steel); and extra heavy phosphor bronze bushings throughout give long, lasting service and make possible our broad guarantee.

¶ Beware of Imitations. The K-W is the only Road Smoother. K-W Road Smoothers are sold by dealers who know the difference, everywhere, at one price.

**\$25** set of four  
one for each wheel

If your dealer cannot supply you sent direct on receipt of price. Write for booklet "Taking Out the Bumps."

HEADLIGHTING  
OUTFITS

THE K-W IGNITION CO.  
2435 CHESTER AVE.  
CLEVELAND, OHIO, U.S.A.

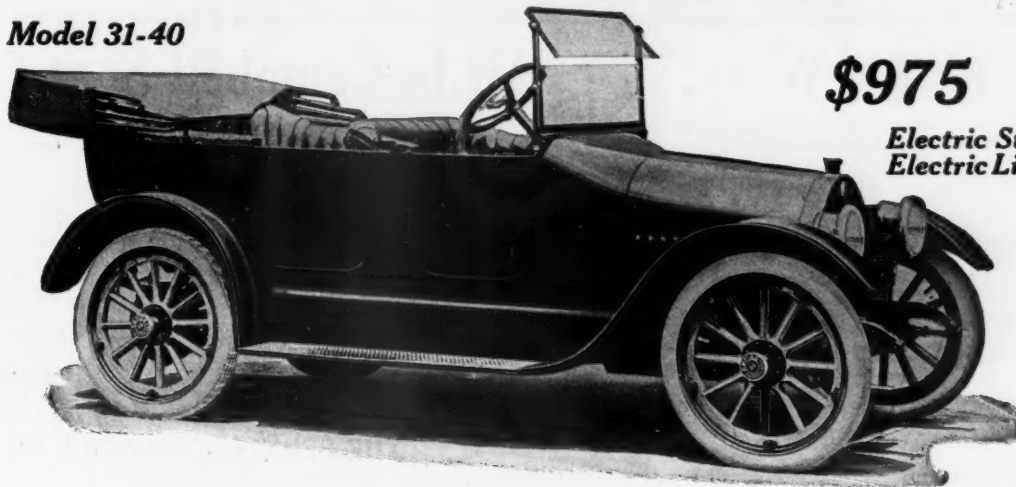
SPARK COILS  
SPARK PLUGS

When Writing to Advertisers, Please Mention Motor Age.



# EMPIRE

**Model 31-40**



**\$975**

*Electric Starting  
Electric Lighting*

## "A Thousand Dollar Year"

**A**UTOMOBILE buyers this season favor cars selling at about \$1,000. They demand cars at this price, completely equipped and attractive in appearance. In these points as well as in mechanical excellence the EMPIRE stands out as its class leader for 1915.

"About One Thousand Dollars" has been set definitely as the price at which the manufacturer can give the utmost in a light car, with complete equipment, electric starter, etc. At a price higher than this, the average buyer pays only for excess room and extra weight, that adds unnecessarily to up-keep expense. At a price much lower, essentials that make for a complete car must be slighted or quality lowered.

EMPIRE cars for 1915 meet the standard of

the buyers' demand. *Model 31-40* at \$975.00 stands out as the ideal, complete, light car, with beautiful streamline body and electric starting and lighting. *Model 31* at \$850.00 is the biggest high grade, non-electric five passenger touring car value ever offered. Quality of both is proven, for the chassis has been continued through five seasons of success without change in any basic principle of construction.

Representing the EMPIRE places the dealer in a position to meet the 1915 demand. Increased production enables us to contract with dealers in territory we have never before covered. Possibly your territory is open. If so, we can submit you a most attractive sales proposition. Write today.

**Model 31**



**\$850**

*Completely  
Equipped*

**Empire Automobile Co. 457 Capitol Avenue Indianapolis, U. S. A.**

# CAMPBELL

ESTABLISHED 1879

## Guaranteed Motor Car Accessories

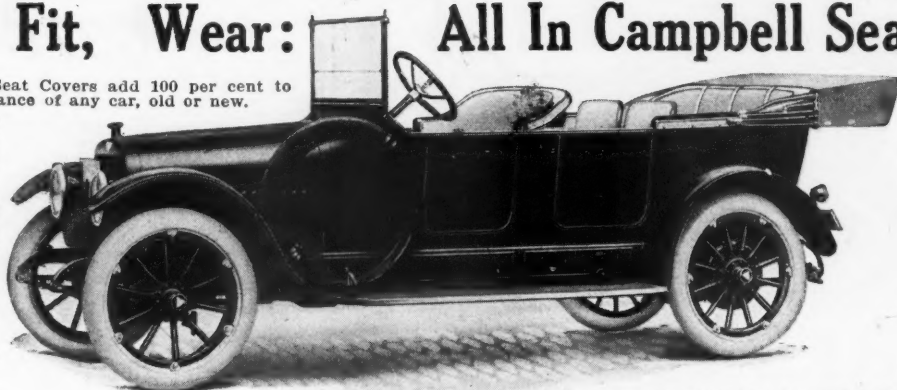
### Looks, Fit, Wear: All In Campbell Seat Covers

**Looks** Campbell Seat Covers add 100 per cent to the appearance of any car, old or new.

**Fit** Campbell Seat Covers fit like a custom tailored suit, and hold their fit, too.

**Wear** Campbell Seat Covers wear like grain leather. They are waterproof and fade-proof. For real service Campbell Covers can't be equalled.

**Dealers:—Get Our Agency Proposition**



Hudson 6-40, Seat Covers & Top Boot, Retail Price \$35.

Car dealers and car owners should get samples and prices on Campbell Waterproof Seat Covers. They're the leaders in their class.

**Write for Catalogue**

THE PERKINS-CAMPBELL CO. 624 Broadway Cincinnati, O.

## Percamg

TRADE MARK REG.  
CLEANS HEAVY FABRICS  
Made by Campbell

Clean your dirty tops and seat covers the easy way. Gets all the dirt. Contains no benzine or gasoline. Quart, 25c; ½ gallon, 40c; gallon, 60c. Write for folder and trade discounts.

### JOHNSON MODEL "D" CARBURETOR

For Fords, \$12.00 Ready to Attach

Put it on your Ford and forget it. A "live" seller and a good "buy." Write for folder.



*"Campbell makes sure you're satisfied"*

## O.G. Temme, President, Triple Action Spring Co. Tells Why He Sells Johnson Shock Absorbers

Ever since the automobile industry started I have been actively engaged in making springs. Have replaced springs on every make of car and know from my own personal experience the absolute failure of leaf springs to give the maximum ease of riding under all load and road conditions.

My customers repeatedly asked me to recommend a shock absorber. I examined every shock absorber carefully and it was not until I saw the patents and models of the



### Note Carefully

Two massive inter-coiled spiral springs of the finest tempered alloy steel which carry the load and absorb the severest shocks.

Inside of these is a slightly lighter coil which takes the lighter shocks and eliminates the recoil.

At the bottom of the case is a nut by which an adjustment covering a radius of 1000 lbs. can be made in thirty seconds by two or three turns with a wrench or pliers.

## JOHNSON SHOCK ABSORBER

*"A Perfect Cushion Between the Load and the Road"*

that I found one I could really recommend. I immediately bought the exclusive right for the manufacture and sale of these shock absorbers and the tremendous success that they have met with has fully justified my conclusions. It is the **only spring shock absorber with a positive recoil check** the only one that is adjustable to all load and road conditions. Without these features I consider any shock absorber next to useless.

**Dealers** who are desirous of handling a shock absorber *that will satisfy* and that will build up a big permanent business, should address

**Triple Action Spring Co., 59-61-63 East Chicago**  
28th St.  
(Established 1906)





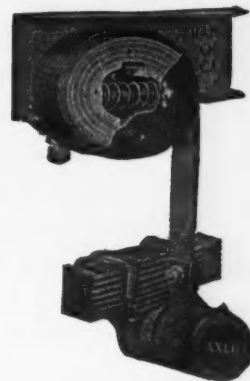
# GABRIEL SNUBBERS

**LEAD** in preference among manufacturers. They are standard factory equipment on the easiest-riding cars, including Chalmers, White, Peerless, Stearns-Knight, Oldsmobile, Lozier and partial or special equipment on over twenty other leaders.

**LEAD** in making cars ride easy and last longer. Snubbers alone retard *only the rebound*, preventing passengers from bouncing off the seat and saving the mechanism from destructive vibration.

**LEAD** in sales increase, their use and sale having more than tripled this year over last year's high record.

**LEAD** in freedom from noise, in durability and in low cost—\$15, \$20, \$25 per set of four, half that per pair.



*Write for full information*

**Gabriel Horn Mfg. Co.,** 1415 East 40th St., **Cleveland, Ohio**

## QUALITY—STYLE—COMFORT

"Push-the-Button"—  
Start the Motor.

"Push-the-Button"—  
Shift the Gears.



*Do It Electrically!*

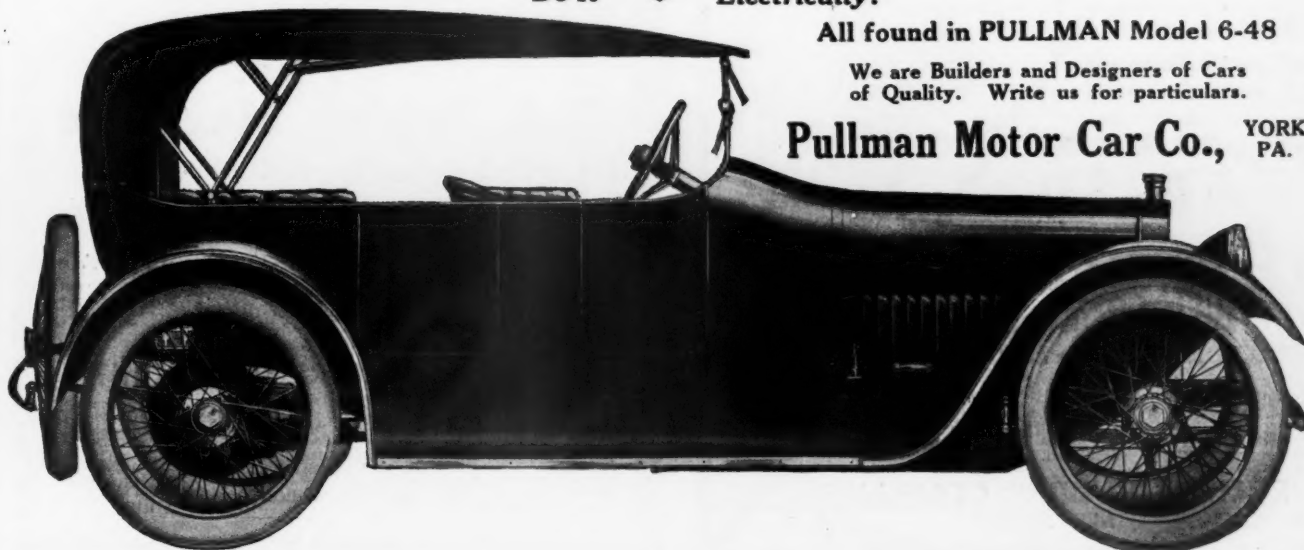
"Push-the-Button"—  
Sound the Alarm.

"Push-the-Button"—  
Light the Lights.

All found in PULLMAN Model 6-48

We are Builders and Designers of Cars  
of Quality. Write us for particulars.

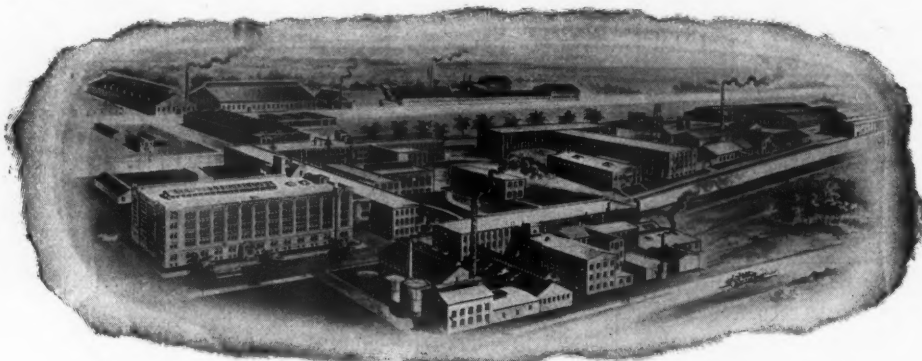
**Pullman Motor Car Co.,** YORK PA.



*When Writing to Advertisers, Please Mention Motor Age.*

# BALL BEARING FACTS

Automobile manufacturers who have been using foreign makes of ball bearings need not worry over the war.



**WORKS OF THE NEW DEPARTURE MANUFACTURING COMPANY**  
2,000 men, Skilled in Manufacturing Ball Bearings, Are at Your Command.

The New Departure plant is producing between ten and twelve thousand bearings per day and this is not its maximum capacity. We can guarantee your specified deliveries not only now, but for any length of time in the future. We can also guarantee the quality of New Departure bearings to be the equal of any.

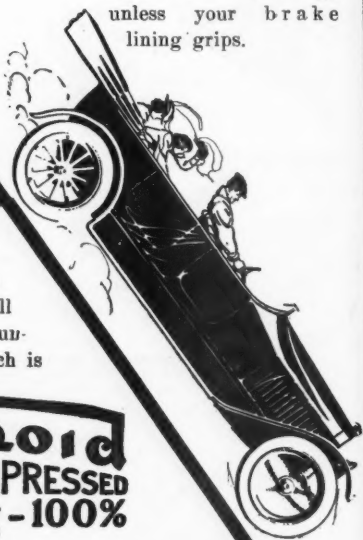
We solicit an opportunity to demonstrate to you our ability to completely meet your requirements *now*.

**The New Departure Manufacturing Company, Bristol, Conn.**  
WESTERN BRANCH, 1016-17 FORD BUILDING, DETROIT, MICHIGAN

All Hills are Not Like This—

**BUT**

Any down grade will seem as steep if your brakes won't work. And your brakes *can't* work right unless your brake lining grips.



Your brake lining—with which you trust your life—should have 100% gripping power all the way through, even until worn ribbon-thin. Such is

**Thermoid**  
HYDRAULIC COMPRESSED  
Brake Lining - 100%

It is not affected by heat, oil, water, gasoline or dirt. Used on the better cars. Ask your dealer or repair man.

OUR GUARANTEE:—Thermoid will make good or WE will.

**THERMOID RUBBER COMPANY**  
TRENTON NEW JERSEY U. S. A.



## High Tension Magnetos

for *Fords*—pleasure and commercial—are revolutionizing the running of thousands of these remarkable machines.

If you want real *Ford* efficiency, write for our free booklet, "Ford Power Possibilities."

### SPLITDORF ELECTRICAL COMPANY

ATLANTA	10-12 E. Harris St.	LOS ANGELES	1215 S. Hope St.
BOSTON	St. Germain & Mass. Ave.	MINNEAPOLIS	34 S. 8th St.
CHICAGO	64-72 E. 14th St.	NEWARK	230 Halser St.
CINCINNATI	811 Race St.	NEW YORK	18-20 W. 63rd St.
DALLAS	402 S. Ervay St.	PHILADELPHIA	210-12 N. 13th St.
DAYTON	427 E. 3d St.	SAN FRANCISCO	1028 Geary St.
DETROIT	972 Woodward Ave.	SEATTLE	1623 Broadway
KANSAS CITY	1827 Grand Ave.	TORONTO	485 Yonge St.
LONDON		BUENOS AIRES	





## Make Your Ford Car Ride Easier

Add the pleasures and comforts of *easy riding* to the dependability of your Ford car. Don't let "car fatigue" caused by rough roads spoil a day's motoring enjoyment. Equip your Ford car with—

### BUCKEYE DE LUXE SHOCK ABSORBERS

They knock the shock—give perfect results on any road, under any load. Constructed of best materials obtainable, including drop forgings, Bronze Rocker plates and Bronze bushings. Unlike other shock absorbers, they never sway when taking sharp curves. However rough the road, the downward motion on their spiral springs is **always at right angles**. Can be attached in **one hour** by any Ford owner. Price, per set of 4, \$15.00. Per set of 2, \$8.00. In ordering specify whether for Touring Car or Roadster. Also specify if for cars with wire wheels.

Order through your dealer or sent direct prepaid on receipt of remittance. Absolutely guaranteed.

**Dealers and Jobbers Wanted Everywhere**

MANUFACTURED BY  
**THE CENTRAL BRASS & FIXTURE CO., Springfield, O.**



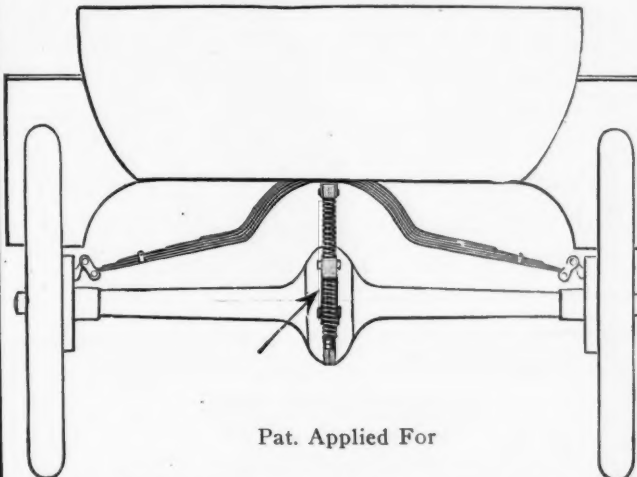
**Takes the Jar Out of the Ford Car**

# HERZ PLUG



The reasons for HERZ PLUG'S superiority to ordinary makes are definite and obvious. The insulation is **DOUBLE STONE**. The electrodes are **PLATINUM-ALLOY**. There are **FOUR SPARKING POINTS**. HERZ PLUG is **SELF-CLEANING**. It is **GUARANTEED A FULL YEAR**. Price, \$1.50. Order from your dealer or **HERZ & CO., 245 W. 55th St. (near B'way), New York**

## EMPRESS SHOCK ABSORBER FOR FORD CARS

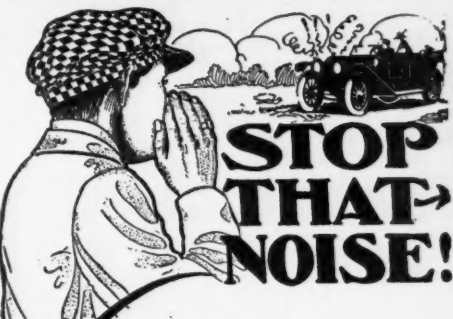


Pat. Applied For

This device checks the ordinary road shocks and regulates the rebound action of the springs. It also steadies the car body, largely eliminating side sway. Can be attached in ten minutes. No jacking up of car necessary. The Absorber is carefully made from the best materials and nicely finished in black hard rubber finish.

Price \$5.00 Each

**BOWEN MANUFACTURING CO.**  
AUBURN, N. Y. ADDRESS DEPT. B.



## STOP THAT NOISE!

Badger Gear Compound stops that noise and makes your rear axles and transmissions keep quiet. It's the very acme of perfection in a lubricant and is guaranteed to give absolute satisfaction.

### BADGER Gear Compound

*"Always On The Teeth"*

It clings to the teeth of the gears, no matter what the speed. Does not run thin and never packs onto the sides of the gear case. Users affirm they never knew before what a difference there was in lubrication.

We also make the well-known F. V. Motor Oil and Badger Lubricants. Ask your dealer or write us.

Dealers! Ask for Territory on the Best Seller Known  
**WADHAMS OIL CO., Milwaukee, Wis.**  
Coast Distributor: Wadhams Oil Co. of Washington, Seattle, Wash., and Vancouver, B.C.

# WESTON Model 301



## Ammeters for the Cowl or Dashboard

are specially built with a full knowledge of the exacting requirements of automobile service. They are designed for continuous reliability and like all other Weston Models, are constructed with the most conscientious regard for the service for which they are intended.

Their serviceability, accuracy, and durability is vastly superior to that of any other small instrument and, in fact, their merits are so radical as to place them in a class which is distinctly their own. We should be glad to prove these statements upon request.

There is no better insurance for the automobile, or starting and lighting equipment manufacturers, against dissatisfied owners or expensive claims, than to use Weston Model 301.

It is an extremely high grade yet surprisingly inexpensive instrument.

For information address,

**Weston Electrical Instrument Co., Newark, N. J.**

New York Boston San Francisco Atlanta Berlin and  
Chicago St. Louis Detroit Richmond London  
Philadelphia Denver Cleveland Toronto

The Best  
Special Body  
Value of  
the Year

Complete  
With All  
Modern  
Refinements  
of Style  
& Comfort



This Is Another Popular  
Closed-Body Style in the

**ROBBINS Ford  
LINE**

The beauty and service of the justly popular ROBBINS Ford Coupe illustrated above does not appeal to the Ford owner merely because it transforms the Standard Ford Roadster into an elegantly designed, luxuriously appointed closed car—but because it increases the value and comfort of such a Roadster many times over the actual cost of the improvement. Equipment and appointments, equal to those usually formed in cars of this type costing three times more, include double adjusting windshield; sashless windows of fine plate glass with patented, interlocking lifting device; electric dome lights, complete with wiring; elegant upholstered seats for three passengers. The floor is carpeted, fittings the highest grade, and, best of all, the entire body can be quickly fitted to any Standard Ford Roadster at trifling expense.

### An Exceptional Opportunity for Progressive Dealers

ROBBINS Ford Standardized Bodies for Ford Cars are sold by Agents, Dealers and Coach and Carriage Establishments in many of the largest cities now. To men and firms who desire to extend their business and maintain its profit-level throughout the entire year, we have an extremely attractive Agency proposition to present. Write TODAY. Prepare now for Fall and Winter Business with Ford Owners who want to increase the value and service of their car.

**IRVIN ROBBINS & CO.**

10th St. & Canal  
Indianapolis, U. S. A.

## Valuable Tire Book FREE!



Send at once for our book "Care and Repair of Tires" and secure the most valuable information on the care, up-keep, and repair of Auto tires. In this book you will learn—

Correct Pressure      Emergency Repairs  
Correct Size          Prevention of Overheating  
Care of Rims          Effects of Careless Driving  
Care of Spare Tires      How to cut Repair Bills  
Care in Winter          How to Get 10,000 Miles Use

and you will also find out how to keep down tire repair bills with

## SHALER Vulcanizers

This wonderful tire accessory repairs cuts, punctures, slits, or blow-outs in casing or inner tube anywhere and leaves the vulcanized spot the strongest part of the tire. Send for this free book.

**C. A. Shaler Co., 240 4th St., Waupun, Wis.**

## PENNSYLVANIA Oilproof VACUUM CUP TIRES

Making their  
mark everywhere

Guaranteed for  
4500 miles

**Pennsylvania  
Rubber Company**

Jeannette, Pa.



TRADE MARK  
REG. U.S. PAT. OFF.

# Schrader

For sale by Tire Mfrs., Jobbers and Dealers of  
**A. Schrader's Son, Inc.**  
783-791 Atlantic Ave., Brooklyn, New York

Universal  
Valves



PAT. MAR. 11, 1891, JULY 6, 1903, OTHER PAT. PENDING  
**SCHRADER UNIVERSAL**  
TRADE MARK REG. IN U.S. PAT. OFFICE  
**TIRE PRESSURE GAUGE**

MADE BY A. SCHRADER'S SON, INC., NEW YORK

Ford buyers to share in profits of the Company. Ask nearest Ford dealer for particulars.

Ford Runabout.....	\$440
Ford Touring Car.....	490
Ford Town Car.....	690
Ford Coupelet.....	750
Ford Chassis.....	410

F. O. B. Detroit, all cars fully equipped.  
(In the United States of America Only)

**Ford Motor Company**  
Detroit, Mich.



# Western Electric

## PITTSFIELD

### Ignition Apparatus

is made for all  
Cars,  
Motorcycles  
and  
Motor Boats.

$\frac{3}{8}$ " thread  
Combination Por-  
celain Mica  
Plug

$\frac{3}{8}$ " thread  
Maximum Duty  
Plug

It is reliable,  
efficient and lasting.

Send to our nearest house for literature  
PITTSFIELD SPARK COIL CO., Mfrs.

## Western Electric Company

Manufacturers of the 8,000,000 "Bell" Telephones

New York	Atlanta	Chicago	Kansas City	San Francisco
Buffalo	Richmond	Milwaukee	Omaha	Oakland
Philadelphia	Savannah	Indianapolis	Oklahoma City	Los Angeles
Boston	New Orleans	Cleveland	Minneapolis	Seattle
Pittsburgh	Houston	Cincinnati	St. Paul	Portland
St. Louis	Dallas	Denver	Salt Lake City	

EQUIPMENT FOR EVERY ELECTRICAL NEED  
Member Society for Electrical Development. "Do it Electrically"

K
KOEHLER ONE TON TRUCK \$750
K

GREATEST VALUE AT THE PRICE • LOWEST PRICE • CAPACITY



Here are brief specifications: Motor, 24 H.P., water cooled, 4 cycle; Ignition, high tension magneto. Tires, 36 in. solid std. removable, also non-skid demountable pneumatic tires optional at extra price. Tread, 58 in. Axles, 2 in. sq. rear, 1 1/4 in. front. Transmission, proved right, by years of use, runs in oil bath.

TEN BODY TYPES

# \$750

## KOEHLER

### ONE TON TRUCK

SEND FOR CATALOGUE

ONE TON TRUCK

**DEALERS** How about your city or town—is it Koehlerized, or waiting for someone to reap a harvest from sales? Will it be you, or one of your competitors who will make it hard for anyone else to sell any other make of truck? The Koehler is a great money-maker for dealers, being the lowest priced ton truck and giving greatest value at any price.

**OUR TRAVELING REPRESENTATIVES ARE NOW COVERING THE ENTIRE COUNTRY** and each has a truck with him. Notify us at once if you are interested as a representative may now be in your section. You do not want to miss a chance to see this truck.

Our complete catalog and selling plan should be in your hands—send for these.

**H.J. KOEHLER S. G. CO.,** 1709 Broadway, New York

ONE TON TRUCK

K
KOEHLER ONE TON TRUCK \$750
K



# Twitchell

## Air Gauge

The New Positive Lock Stop

feature renders absolutely impossible the registration of any but the exact pressure in your tires.

## Don't Guess

Tires inflated to forty pounds look and feel exactly like tires containing eighty. The only way to tell the exact air pressure in your tires is by means of a TWITCHELL gauge.

Price One Dollar  
For Sale by Jobbers, Dealers and Garages, or

**THE TWITCHELL GAUGE CO.**  
1201 MICHIGAN AVE., CHICAGO

# Kemco




**STARTING-LIGHTING SYSTEM FOR FORD CARS**

## Make Your Ford As Easily Started As the Highest Priced Car

**E**QUIP your Ford with a KEMCO Electric Starting-Lighting System and enjoy the convenience, cleanliness and safety of the electrical equipment found on all high priced cars.

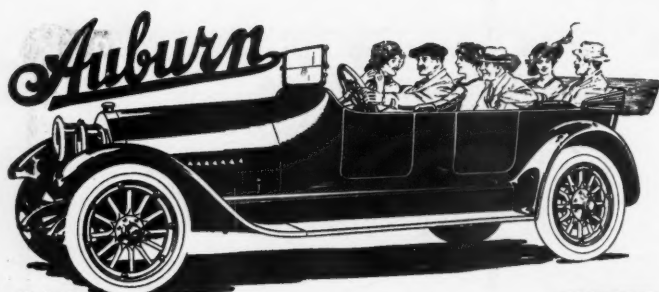
*Two Units*—as dependable as the Ford Car itself.

Starter cranks engine under the most adverse conditions. Dynamo—the best automobile dynamo ever built. Provides ample current for all needs and keeps battery charged with sufficient reserve force to meet any emergency.

Starter easily applied—directly in line with crankshaft—without chains. Cranks engine in the way it was designed to be cranked, only faster and more positively.

SEND FOR DESCRIPTIVE BOOKLET

**The Kemco Electric Mfg. Co., 2233 Ashland Road, Cleveland, O.**



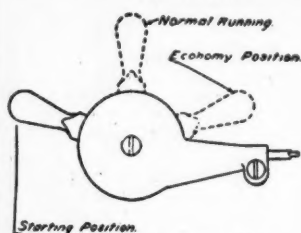
**SIX** Electric Starter, Electric Lights and fully **FOUR**  
**\$1550** equipped without extra cost. Two, Four and **\$1075**  
 Six Passenger Models.

Write for Catalog

Auburn Automobile Company, Auburn, Ind.

## MASTER Carbureters

COPYRIGHTED




Address Dept. J for Full  
 Descriptive Booklet

**MASTER CARBURETOR CORPORATION**  
**Woodward and Hancock Detroit, Michigan**  
 Pacific Coast States: Master Carburetor Co., Inc., Los Angeles

With the MASTER CONTROL it is never necessary to run with a poor mixture.


Since atmospheric conditions cannot be controlled, a proper mixture can be maintained at the will of the driver to suit the varying atmospheric conditions.





### BOSTON STARTER

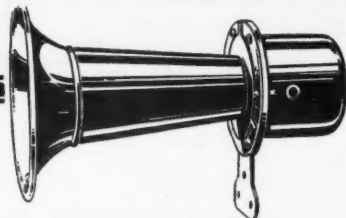
#### For FORD CARS

¶ Fully Guaranteed. ¶ Does the work. ¶ Cost—a fraction of electric starting cost. ¶ No harm to car; does not interfere with cranking in usual manner. ¶ Releases in case of backfire. ¶ Retards spark automatically before starting. ¶ Time tried success—no experiment. ¶ Be sure you get the BOSTON STARTER. ¶ Ask the Ford dealer or your dealer or write.



Boston Starter, Boston Mass.



Lowest Priced Electric Horn Obtainable

## REXO II

**\$3.85—Ready to Attach**

Guaranteed for the Life of Your Car

THE GARFORD MFG. CO., 2508 Olive Street Elyria, Ohio, U. S. A.

# PAIGE

Model "36" \$1195.00

A car whose design and construction is so far ahead of others at its price that it is in a class all its own.

Gray and Davis Electric starting and lighting equipment, silent chain cam shaft drive, four inch by five inch motor, cork insert multiple disc clutch, 116 inch wheel base, left side drive, center control, and equipment complete to the last detail.

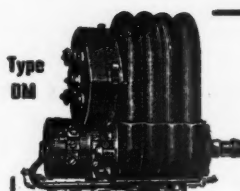
Model "25" \$925.00

Including Electric Starting and Lighting System

This model has made the Paige reputation. Such a sturdy, powerful, comfortable car has never been offered the public at anywhere near its price. \$925.00 with complete equipment.

Splendid Agency Proposition

Paige-Detroit Motor Car Co., Detroit, Mich.



Type  
DM

## HEINZE



The performance of HEINZE IGNITION APPARATUS for the past ten years justifies our claim that our product is superior in both points of construction and efficiency.

### HEINZE ELECTRIC COMPANY

SALES OFFICES—DETROIT, MICHIGAN  
 FACTORY—LOWELL, MASS.

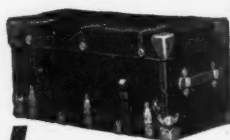
Service Stations—New York, Detroit, Chicago, Kansas City.

## CONNECTICUT

### Master Vibrator For FORDS

Simple to install—Practically no adjustment—  
 Gives more power, flexibility and makes starting  
 easier. Price \$9.00.

**CONNECTICUT Telephone and Electric COMPANY**  
 Meriden, Conn.



## KAMLEE Auto Trunks

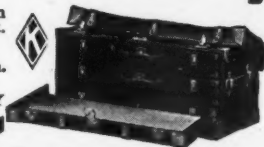
**Dust-Proof, Rain-Proof, Mud-Proof**

¶ Quality trunks built for service. We make the strongest and best as well as the most economical motoring trunks in the world. Styles for every car—sizes for every need. Wide range of prices.

ASK YOUR DEALER

If not at your dealer's we'll ship on approval. Catalog mailed upon request.

**KAMLEE COMPANY**  
 234 Broadway, Milwaukee, Wisconsin.  
 Western Sales Room  
**THE BAILEY-DRAKE COMPANY**  
 604 Mission St., San Francisco, Cal.







## RAJAH GIANT PLUG

For pleasure car,  
motor boat or  
truck.

Porcelain and  
metal parts large  
and strong.

Extremely sim-  
ple construction

for cleaning —  
only four parts  
— shell, porce-  
lain, bushing and  
gasket.

With proper care  
GIANT Plugs can  
be used for years.

Rajah Auto-Supply Co., Bloomfield, N. J.

John Millen & Son, Limited  
Montreal, Toronto, Vancouver, Winnipeg



## Racing Type Roadster Seats

Adapted to all makes of cars. By removing touring car body may be used to transform any touring car into a roadster. Make a handsome racing type speedster of any Ford car. Durable, weatherproof, comfortable. 16" wide, 17" deep, 18" or 21" high, as desired.

Upholstered in Mule Skin, enameled any color, pair.....\$23.00  
Hand buffed leather.....\$25.00

**Auto Parts Company** 737-739 W. Jackson Blvd.  
CHICAGO

## O-LAX "Carbon Remover"

A new scientific method of removing carbon.

**"Is Absolutely Guaranteed"**

A proven success. Once used always used.

Contains No Acid. Will Not Injure Metal.

Send \$1.00 for Trial Can and Be Convinced

The best dollar you ever spent on your motor. A few drops of O-LAX on a hot, badly carbonized spark plug will prove its merits immediately.

QUARTS	HALF GALLONS	GALLONS
\$2.50	\$4.50	\$8.00

Distributors wanted for all parts of the United States.

**Wilkes & Grant Company**

Manufacturers

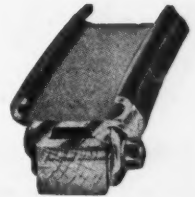
601-603 E. Broadway

Louisville, Kentucky

## Firestone

### Quick Detachable, Demountable Rims

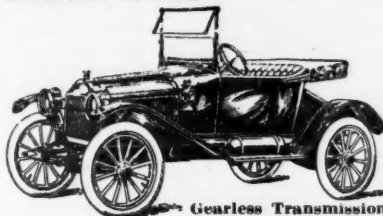
They were first; they are latest and best. For catalog with reasons of Safety, Economy and Easy Operation call on our nearest branch or write



**Firestone Tire & Rubber Company**

Akron, O. Branches and Dealers Everywhere

## METZ "Twenty-Two" Roadster



WINNER OF THE  
GLIDDEN TOUR

# \$495

Equipped Complete

Fore-door body, extra thick tufted upholstery, plate glass rain-vision wind shield, left-hand drive with center control, 4-cylinder, 22 1/2 H.P. water-cooled motor, Bosch magneto, Prest-O-Lite tank, extension top full elliptic springs, artillery wheels, best quality Goodrich clincher tires, 5 lamps, horn, pump, jack, tools. Speed, 50 miles per hour. Beat 'em all at climbing hills. Secure EXCLUSIVE SALE in your territory. Write for terms and Catalog "K."

METZ COMPANY

WALTHAM, MASS., U. S. A.

## Searchlight Gas

the most economical and dependable lighting system on the market.

Full details mailed to you on request.

**THE SEARCHLIGHT CO.**

GENERAL OFFICE, 1016 KARPEN BUILDING  
CHICAGO, ILL.

## KINGSTON IGNITION DEVICES

High and low tension magnetos, make-and-break coils, dash coils, box coils, motorcycle coils, switches, spark plugs and other ignition specialties. Guaranteed satisfaction.

WRITE FOR CATALOG

KOKOMO ELECTRIC COMPANY, Kokomo, Ind.

**PRESSED Steel Frames for**  
**Pleasure Cars & Trucks**  
*Rear Axle Housings*  
*Heavy Stampings-Drop Forgings*

**A. O. Smith Company**  
Milwaukee

## A Light Car Motor with Self Starter

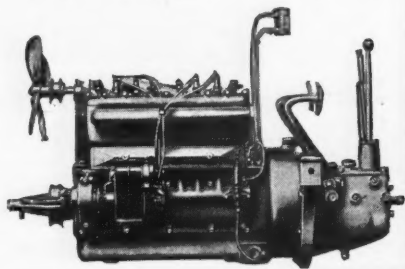
# GBS

## MOTORS

## Gearless Balanced Silent

THIS latest addition to the GBS motor family is Model D, 4 cyl., 3 1/2" x 4 1/2", en bloc, detachable cyl. head, extra large bearings, unit power plant, 3 pt. support. Electric self starter if desired. High grade throughout. Write for details.

**Golden, Belknap  
& Schwartz Co.**  
Detroit, Michigan



## Only One Tire THE DAYTON AIRLESS

is at all suitable for use on motor cars.

### In War Times

When the car must be ready at all times—ready to go over any surface without failure—at unlimited speeds without injury to the car—without puncture or blowout—and ready to keep on going—then use Dayton Airless Tires. War time has no place for the stock excuse that the tire was not properly inflated or there was a stone bruise or that there was some unusual service.

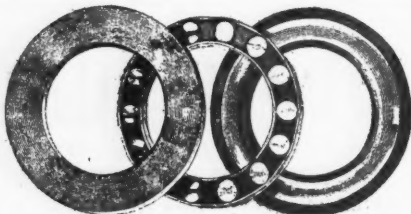
### In Times of Peace

Tire service conditions are the same. If you require sure service—if your car must always be ready for action—if you want sure service with economy use Dayton Airless Tires.

Write for information.

**THE DAYTON RUBBER MANUFACTURING COMPANY**  
Dayton, Ohio

We will send you the address of our nearest branch or dealer.



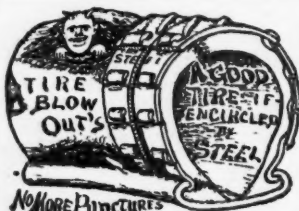
COMPLETE THRUST BEARING



RADIAL RETAINERS

**The Star Ball Retainer Co.**  
Lancaster, Pa., U. S. A.

**Manufacturers of Radial Ball Retainers, Thrust  
Ball Retainers, Complete Thrust Bearings**



## Steel Protectors

Each section 2 in. wide, 1/8 in. thick. They hook to rim. As flexible as ever. Anti-Skid, Can't Blow Out or Rim Cut.

**HOW CAN THE RUBBER WEAR OFF  
IF IT IS COVERED WITH STEEL?**

Try 2 or 3 sections over any old blowout

Special prices to the first in new territory  
**Kimball Tire Case Co., Inc., Council Bluffs, Ia.**



Tire covered  
complete

TRADE MARK REGISTERED IN  
**NON-FLUID OIL**  
UNITED STATES PATENT OFFICE

### The Perfect WINTER Lubricant

NOT Affected by Temperature Changes, Winter or Summer  
It always provides a permanent, slippery, pressure-resisting cushion between

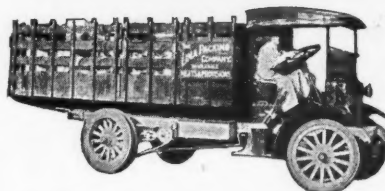
gears and bearings, thereby reducing friction to a minimum and insuring you perfect lubrication in coldest weather. Last 3 or 4 times longer than fluid oils or greases, hence most economical. "K. No. 00 Special" grade for sliding gear transmission. "K. No. 000" for differential, compression cups and all bearings.

Sold everywhere. Look for the orange-colored can bearing sprocket-wheel trade-mark shown above.

**New York & New Jersey Lubricant Company**  
165 Broadway, New York  
1430 Michigan Ave., Chicago



## B.A. Grammm's Trucks

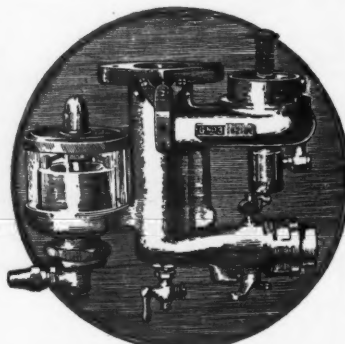


Are machines that are attracting the attention of the discriminating truck buyers, the men who recognize quality and service giving construction in a truck.

The individual clutch transmission, self-starter and guaranteed springs are a few features that will interest you and which mean much to the user. Descriptive catalog upon request.

**The Gramm Bernstein Company**  
Dept. 9  
Lima, Ohio, U. S. A.

More 1914 pleasure car and commercial car models are equipped with STROMBERG Carburetors than with any other make of carburetor.



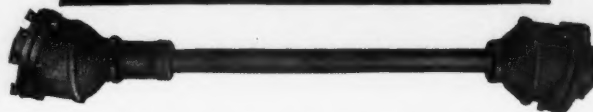
A STROMBERG under the hood is the hallmark of a QUALITY car.

Write for free booklet containing "Reasons Why."

"The Accepted Standard"

**Stromberg Motor Devices Company, 54 East 57th St., Chicago, Ill.**

## Spicer Universal Joints



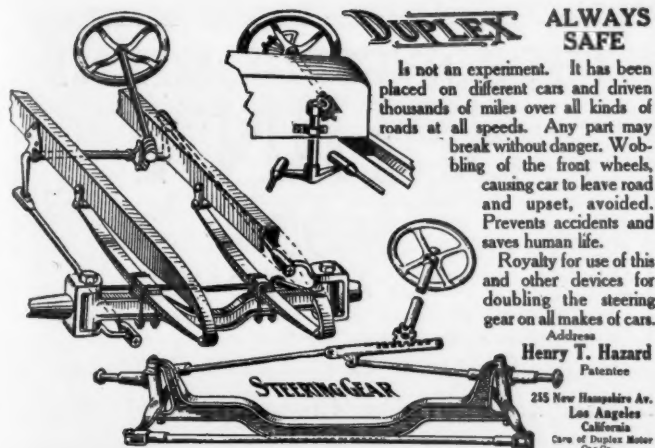
Universally Accepted as the Most Dependable Flexible Connection Known to Motor Car Practice

**Oil-Tight INTERCHANGEABLE PARTS Dust-Proof**  
**SPICER MANUFACTURING COMPANY, Plainfield, N. J.**

Sales Representatives:

K. FRANKLIN PETERSON, 122 S. Michigan Blvd., Chicago.  
L. D. BOLTON, 2215 Dime Savings Bank Bldg., Detroit.  
Foreign: BENJAMIN WHITTAKER, 21 State Street, New York





### DUPLEX ALWAYS SAFE

Is not an experiment. It has been placed on different cars and driven thousands of miles over all kinds of roads at all speeds. Any part may break without danger. Wobbling of the front wheels, causing car to leave road and upset, avoided. Prevents accidents and saves human life.

Royalty for use of this and other devices for doubling the steering gear on all makes of cars.

Address  
Henry T. Hazard  
Patentee

215 New Hampshire Av.  
Los Angeles  
California  
Care of Duplex Motor Car Co.

## WINTON SIX

### Write Your Own Guarantee

There is no doubt in our minds that the most enjoyable car, the most thoroughly perfected car either in Europe or America is the Winton Six. It is unique in both its goodness and its beauty; and when you buy one you may have your own color scheme and write your own guarantee. We are now delivering the 1915 model.

THE WINTON MOTOR CAR COMPANY  
424 Berea Road, Cleveland, Ohio

World's First Maker of Sixes Exclusively

### THE RUTEMBER MOTOR

Fourteen years on the same job! For fourteen consecutive years we have been making nothing but Rutember Motors, putting into them the best that was in us and the best that money could buy in service, materials and engineering skill. Our 1915 Model, a six-cylinder motor of superb quality, is the fruition of these years of honest effort. Cars that carry Rutember Motors can be depended on for fundamental excellence.

THE RUTEMBER MOTOR CO.  
MARION, INDIANA

## “Bridgeport”

TRADE MARK

### TIRE PUMPS

Are easy to use and easy to sell. They are durable and efficient and are widely advertised. The cylinders are of seamless brass tubing which cannot rust. The “Stapley,” the “Aeolus,” “Windjammer,” etc., give lasting satisfaction. Carry them in stock.

Bridgeport Brass Company  
P. O. Box A  
Bridgeport, Conn.

## Electric Auto-Lite Starting—Lighting—Ignition

Electric Auto-Lite equipment for automobiles is as famous for the service that backs it as for the reliability and economy of its operation.

ELECTRIC AUTO-LITE COMPANY  
Home Office and Factory: Toledo, Ohio

New York    Detroit    Kansas City    San Francisco

# SALISBURY

## AXLES WHEELS PROPELLERS

Salisbury Wheel & Mfg. Co.  
JAMESTOWN, N.Y.

### Cartecar Model Nine

The New Gearless Transmission  
Cartecar for 1915

Driven by “Wheel and Disk”—with 12 years of success behind it. New Streamline Body. Delco Electric System Starting and Lighting. Full Equipment. Big Tires, Roomy.

Some Territory Open, Deliveries at Once, Get Busy  
Write for our proposition and “The Transmission Tells the Story”

Cartecar Company    Pontiac Michigan    \$1,250

## Guaranteed for 10,000 Miles Bricton Pneumatic Tires

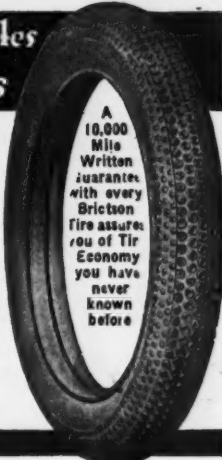
We now sell Bricton Pneumatic Tires on a specific guarantee of 10,000 miles service. Bricton Pneumatic Tires are Puncture-proof, Blowout-proof, Skid-proof, Rut-proof, Rim cut-proof, Oil-proof and Gasoline-proof. A tire with wonderful resiliency and easy riding qualities.

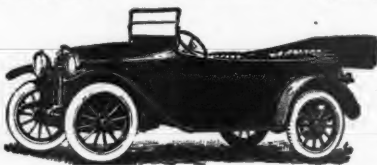
Ten Days Free Trial—To remove any possible doubt concerning the merits of Bricton Tires and to back up our statements fully, we will allow you ten days' trial on these tires at our risk. If Bricton Tires are not perfectly satisfactory in every way you can return them to us at any time within ten days and we will cheerfully refund the entire purchase price. Send for particulars today.

Have Your present Tires Rebuilt the BRICTON WAY—If you are not in need of new tires and the fabric in your tires is still good, we can rebuild them the Bricton Way, give you thousands of miles additional service and make them Puncture-proof, Blowout-proof, Skid-proof, Rut-proof, Rim cut-proof, Oil-proof and Gasoline-proof.

Write today for full particulars giving dealer's name

THE BRICTON MFG. CO.,  
12-104 Bricton Bldg. Brookings, S. Dak.



**The Detroit — \$1050**With Westinghouse  
Starting and  
Lighting SystemFIRST  
Pure  
European  
Streamline  
in This  
CountryFIRST  
Long-  
Stroke  
Ball-  
Bearing  
Motor

Full Floating Rear Axle, Platform Rear Spring Suspension, All Recording Instruments in One Unit, Red Electric Flash Oil Gauge, Carburetor Above Frame, 112 Inch Wheel Base, Left Hand Drive, Center One-Lever Control, Multiple Disc Clutch in Oil, Less than 2300 Pounds, 32 H. P.

**Briggs-Detroit Co., 455 Holbrook Ave., Detroit, Mich.**

*Write for Catalog and Proposition*

# HOUK

Detachable  
WIRE WHEELS

The wheel that makes any car modern

**GEORGE W. HOUK COMPANY**

1702 Elmwood Avenue, Buffalo, N. Y.

## Prest-O-Lite

is the most

## RELIABLE

Lighting System

All the facts on  
All lighting systems  
mailed you on request

**The Prest-O-Lite Co., Inc.**

233 Speedway Indianapolis, Ind.

(Contributor to the Lincoln Highway)

See that YOUR car  
is equipped with the

# Atwater Kent

## Ignition System

It will be an easier  
car to start and a  
better car to drive.

**ATWATER KENT MFG. WKS.**  
4934 Stenton Ave., Phila., Pa.

# THE POWERFUL, SILENT SPHINX

**\$695**

## A REAL AUTOMOBILE

The lightest, strongest, most serviceable and economical machine of its kind ever built.

112 inch wheel base. Electrically started and lighted.

**Sphinx Motor Car Company, York, Pa.**



## Hyatt Quiet Bearings

### HYATT SERVICE STATIONS

1120 Michigan Ave., Chicago, Ill.  
756 Woodward Ave., Detroit, Mich.  
169 Massachusetts Ave., Boston, Mass.  
Fourth and Middlesex Sts., Harrison  
(Newark), N. J.  
1210 South Figueroa St., Los Angeles, Cal.

### SERVICE AGENTS

Pence Automobile Co., 800 Hennepin Ave.,  
Minneapolis, Minn.  
Broom & Wade, High Wycombe, England.

**HYATT ROLLER BEARING CO.**  
DETROIT, CHICAGO  
NEWARK, N. J.



THINK THOUSANDS OF MILES  
AHEAD, AND YOU WILL BUY  
**REPUBLIC MILEAGE**  
PLAIN AND STAGGARD TREAD  
**TIRES**

**THE REPUBLIC RUBBER CO.**  
YOUNGSTOWN, OHIO.

BRANCHES AND AGENCIES IN THE PRINCIPAL CITIES.

# Lexington

CRITERION OF ITS CLASS

Light Six—\$1875

Light Four—\$1375

Six Supreme—\$2575

All equipped with the Moore Multiple Exhaust

*Write for Details and Co-operative  
Dealer Proposition*

**The Lexington-Howard Co.** Eighteenth Street West  
Connersville, Ind., U. S. A.



**Raybestos**  
TRADE MARK  
 REG. U.S. PAT. OFF.  
**THE PRODUCT OF BRAKE SPECIALISTS**  
 USED FOR  
**BRAKE LINING - CLUTCH FACING**  
 Manufactured by  
**THE ROYAL EQUIPMENT COMPANY**  
 Bridgeport Conn.

KisselKar 36 "Four"  
 \$1450



### The All-Year Car

Biggest idea of the year  
 in body design.

Every inch  
 a Car

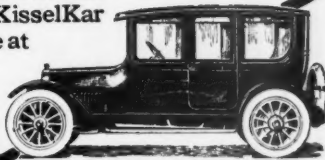
## KISSELKAR

Every inch  
 a Car

Two-Door Body and Detachable  
 Sedan Top afford the KisselKar  
 owner all-weather service at  
 but \$350 additional.

Ask for Details

KISSEL MOTOR CAR CO.  
 121 Kissel Ave. Hartford, Wis.



Detachable Sedan Top, \$350 addi.

# MARMON

"The Easiest Riding Car In The World"

**"41"**

**\$3250**

132" Wheelbase

**"48"**

**\$5000**

145" Wheelbase

**Nordyke & Marmon Company**  
 Indianapolis (Established 1851) Indiana  
 "Over Sixty Years of Successful Manufacturing"

# Inter-State

We have a money making proposition  
 for every live dealer in the country. It  
 will pay YOU to investigate it NOW.

**Inter-State Motor Company**  
 Dept. C Muncie, Indiana

## DYNETO

Size, weight, efficiency and price considered  
 the Dyneto single unit starting and lighting  
 system literally transcends any other device  
 or combination of devices on the market.

**DYNETO ELECTRIC COMPANY**  
 SYRACUSE NEW YORK

Our engineering department is at the  
 service of any manufacturer having  
 electrical problems of any character.

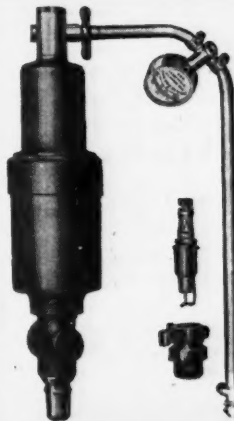


## BOSCH

ALL prominent cars are  
 equip with Bosch Mag-  
 netos. Their motors give  
 maximum service, of course.

Be Satisfied Specify Bosch

**Bosch Magneto Co.**  
 214 West 46th St., New York



### The Easiest Thing You Do

It's very easy to pump up your  
 tires with a Brown Impulse Tire  
 Pump, easy to put in and take  
 out, easy to get the right pres-  
 sure. Your car rides better, your  
 tires last longer if you use a  
 Brown Pump.

Price complete, including tire gauge,  
 special tested air hose, B-Co.  
 Q. D. Spark Plug..... **\$15**

Ask your dealer,  
 your neighbor or us

**THE BROWN COMPANY**  
 120 Bellevue Ave., SYRACUSE, N. Y.

# Corcoran Lamps

GAS, OIL, AND ELECTRIC

CORCORAN LAMP CO.  
 CINCINNATI, OHIO

## The AERMORE Exhaust Horn



The ideal auto horn. It clears the road every time with a musical signal that does not shatter the nerves. Four distinct notes are produced at once, blending in a perfect harmony.

### No Up-Keep Expense

Consider that there are no batteries to run down, no wires or delicate mechanism to get out of order, and that your first cost is the last. Send for catalog.

DEALERS—Our prices are low. A small stock does not tie up much money. Discounts are liberal.

**THE FULTON COMPANY**

724-726 National Avenue, Milwaukee, Wisconsin

## FEDDERS RADIATORS



**Fedders Manufacturing Co., Inc.**

Buffalo - - - N. Y.

## A NEW SERIES AND A NEW PRICE 1915 Model PREMIER \$2385

Stream line body, left side drive, center control, unit power plant, three point suspension, electric lights and starter, one man top, clear running boards. New price \$400 lower.

**PREMIER MOTOR MFG.CO.**  
INDIANAPOLIS.

**TOURING CAR**  
\$850

**SPEEDSTER**  
\$750

## The Vulcan 27

*"The World's Greatest Light Car"*

1914 is to be the year of the Light Car—the low upkeep car—the VULCAN

Send for catalog and generous dealers' proposition.

**VULCAN MFG. CO., Painesville, Ohio Lock Box MA477**

**\$2500**

**\$2500**

**MOLINE KNIGHT**

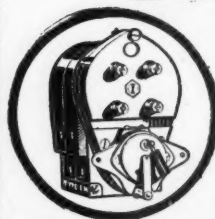
**More Power  
More Flexibility**

**More Economy  
More Silence**

Guaranteed 50 horsepower, 128-inch wheel-base, four speeds, 36 x 4½ inch tires, Bosch ignition, Wagner electric starter, no valves to clog or grind, simpler parts, fewer parts. Touring Car and Roadster \$2500, Sedan \$3250, Limousine \$3800.

**Moline Automobile Co., East Moline, Ill.**

## EISEMANN



The performance of Eisemann Ignition Systems during the Indiana-Pacific Tour justifies every claim we have ever made for Eisemann efficiency and dependability.

**The Eisemann Magneto Co.**

Sales and General Offices  
32-33rd St., Brooklyn, N. Y.

New York City Indianapolis, Ind. Detroit, Mich.  
128 W. 52nd St. 514 N. Capitol Ave. 802 Woodward Ave.

## THE ONE-MAN TOP

IT NEEDS NO CRY FOR HELP

**Golde Patent Top**

Complete Tops, Frames, Sockets and Shop Rights

Protected by 11 Patents and other Patents pending

CAN BE HANDLED BY ONE PERSON AS EASILY & QUICKLY AS AN UMBRELLA

INSTANTANEOUS PROTECTION

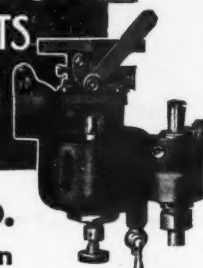
**GOLDE-PATENT MANUFACTURING CO. 513 W. 56th ST. NEW YORK.**

## HOLLEY CARBURETOR

**NO MOVING PARTS  
ONLY ONE ADJUSTMENT**

WRITE FOR PARTICULARS

**Holley Brothers Co.**  
Detroit Michigan





# The Clearing House of the Motor Car Industry

*For Second Hand Cars, Surplus Parts, Accessories, Tires,  
Machinery & all other Special Announcements of a Similar Character.*

**ADVERTISING RATES** ¼ inch—One time \$2.40. 1 inch—One time \$4.50. 1½ inches—One time \$6.75. 2 inches—One time \$8.75.  
Rates for other spaces and longer terms furnished upon request.

## CARS FOR SALE

### Attention, Dealers and Agents

**STOP!** Losing money on Second-Hand Cars. Get the "Used Car Central Market Report," a book which shows you what cars are selling for in Chicago—the "Great Central Market." This service will save you, on a single deal, more than its cost for an entire year.

For Particulars Write

**CHICAGO AUTOMOBILE TRADE ASSOCIATION**

2422 Michigan Avenue

Chicago

**Auto Bargains** | **New Cars at ½ Price**

Greatest values in new cars ever advertised are shown in our sales rooms now. They are selling at prices that demand your

### IMMEDIATE ATTENTION

Write for special lists of new guaranteed automobiles and motor trucks.

## Times Square Auto Co.

S. W. Cor.  
Broadway & 56th St.  
NEW YORK

1210-1212  
Michigan Ave.  
CHICAGO

### AUTOMOBILES

Big bargains. All makes. No junk. Fords every description. Light cars, Limousines and Bodies. Write or call.

**SACKETT & TRUMBULL**  
325 E. 21st Street Chicago, Ill.

**FOR SALE—MARION TOURING CAR, 1912** model "32," four-cylinder, five-passenger, in good condition. A bargain for someone.

Address Box E-224, care of Motor Age

**FOR SALE—A BEAUTIFUL SEVEN-PASSENGER** White Steam car, Model M.M., in A-1 condition. Practically as good as new. A fine bargain for someone.

Address Box E-225, care of Motor Age

### GET OUR LATEST BULLETIN OF USED CARS

You will surely find one to fit your requirements. You can get from us good, serviceable machines of various makes for \$400 and up. Let our reputation be your guide.

**PACKARD MOTOR CO. OF CHICAGO**  
2367 Michigan Ave., Chicago, Ill.

**GUARANTEED AUTOMOBILES, \$50 UPWARD.** Engines, \$15.00. Axles, wheels, coils, any part you want, dirt cheap.

**PROGRESS BROKERAGE CO.**  
527 Grant St. Buffalo, N. Y.

### Mitchells, Rebuilt, Guaranteed

These cars are fully equipped. Call or write for further particulars.

**MITCHELL AUTOMOBILE CO.**  
2334-36-38 Michigan Ave. Chicago, Ill.

### ONE 20 H. P. WHITE STEAMER

One 40 H. P. White Steamer; one 30 H. P. White gas car. Address:  
Box E 191 care Motor Age

### RAUCH & LANG ELECTRIC

1912 BROUGHAM, cord, tires, 40-cell battery, shaft drive, newly painted, perfect condition, fully guaranteed, price \$1250. **FRANKLIN MOTOR CAR CO.,** 616 Commonwealth Ave., Boston, Mass.

### REO TRUCK \$200

Car in No. 1 condition. This car must be sold at once; guaranteed; demonstration.

**RAY THOMAS**

1176 E. Main St. Columbus, Ohio

### STEARNS-KNIGHT

1914, 4-cyl., 5-pass., new tires, car in perfect condition, limited mileage.  
Price \$2050

**FRANKLIN MOTOR CAR CO.**  
616 Commonwealth Ave., Boston, Mass.

**STEARNS, 30-60, small 5-pass. body** which has recently been overhauled and repainted. This is a bargain. Make me an offer.

**CONDON**

2635 Wabash Av., Chicago. Calumet 5311

### WHITE STEAMER

Slightly used parts at less than half of new prices. Good condition and assortment.

Address Box E-160, care of Motor Age

1911 7-passenger Flat Limousine, new paint, good tires.....\$1500.00  
1912 6-passenger Stearns-Knight, new paint, good tires..... 1000.00  
1913 4-passenger Stearns-Knight..... 1650.00  
**J. A. FORSYTHE, JR.**  
546 Peachtree Street Atlanta, Ga.

## MACHINERY

**50 LINCOLN MILLING MACHINES**  
\$50.00 Each

Send for photo and description  
**LUCAS & SON, 5 Fox St., Bridgeport, Conn.**

## MAGNETOS

A general clean-up in our 1914 stock. All makes of high and low tension magnetos. New and used coils for battery and ignition. Will all be sold at cost while they last.

**Pellet's Magneto Exchange**  
1606 Michigan Ave. Chicago, Ill.

### MAGNETOS

Repaired, remagnetized; prompt service on all makes. Get our exchange proposition on new K-W for old equipment.

Spark Coil, Storage Battery and Carburetor Repairs.  
Northwestern Distributors.  
K-W Magnetos, Schebler Carburetors, Vesta Lighting Equipments.

Kellogg Self Starter and Tire Inflators.  
**REINHARD BROTHERS CO.**  
Minneapolis, Minn.

## MAILING LISTS

### Ask for Special Price List

Auto Owners, Ford Owners, Ford Dealers, all other dealers, Garages, Repairs, Supplies, Manufacturers, Jobbers, anything pertaining to the Auto Trade.

**Auto List Dept. A. F. Williams, Mgr.**  
166 West Adams Street CHICAGO  
Phone Franklin 1182

**MAILING LISTS AND STATISTICS.** Owners or dealers; any state, county, city; weekly and monthly supplements at lowest prices. Special lists of electric, trucks, Fords, Studebaker, Overlands, etc. **MOTOR LIST CO. OF AMERICA, 1107 Locust St., Des Moines, Iowa.**

## MOTORIST'S BOOKS

### Motor Tours in the United States

Three hundred and fifty routes covering practically all the best roads in the country; one hundred up to date and accurate maps, all arranged in such a way that the book can be conveniently carried in your pocket. Paper covers, 25c a copy.

### MOTOR TOURS

51 Chambers Street New York City

### THE PRACTICAL HAND BOOK

of Gas, Oil and Steam Engines.  
Send for complete circular.

**CHARLES C. THOMPSON CO.**  
1130 S. Wabash Avenue, Chicago, Ill.

## MOTORIST'S CLOTHING

### COATS AND ROBES

Rubber Plush Cloth Fur Lined Quilted Lined	<b>ROBES</b> and <b>COATS</b>	Spring-Belt Fur Steamer Plush Lined Fur
--	-------------------------------------	---

WHOLESALE ONLY

**CHICAGO AUTO ROBE SUPPLY CO.**  
14 So. Market St., Chicago, Ill.

### FUR LINED OVERCOATS

Limited quantity Manufacturers' samples. Black broadcloth outside, lined throughout with Mink dyed marmot. A beautiful Fur, like Mink. Large Persian lamb collar. Making a handsome coat, suitable for Dress wear or driving. All sizes.

**\$27.50**

Would retail for \$60.

**SENT ON APPROVAL.**  
You take no risk. Examine and try on before paying. Write today, stating size, enclosing 50c. for express charges only, and coat will be sent at once. Few large size Fur robes, \$15 each, worth \$30.  
**E. HART, Dept. E, 1328 Broadway, New York**

## PARTS AND ACCESSORIES FOR SALE

**AAA SPEEDOMETERS AAA**  
Send for special price list of Speedometer Parts.  
**GENERAL SPEEDOMETER REPAIR CO.,**  
53 W. 63rd St., New York City

# The Clearing House—continued

## ACCESSORY CATALOG

Mailed on request. Dealers, send list of wants for special prices. Westchester cup grease, bbl. lots, 4c pound. **WESTCHESTER ACCESSORIES CO.**, 1777 Broadway, New York City.

## AGENTS AND DEALERS

We announce a reduction of from \$20.00 to \$14.00 on our Spare Demountable Wheels for the Ford. We have some good territory left. Why not handle an original line. Carry extra wheel with tire on ready and interchangeable with any of present wheels. Can install outfit at home, then change wheels in less than two minutes. Write for catalogue. Legitimate dealers, get our agency for Spare Wheels, Spring Radius Rods, Pan Belts Radiator Cradles, etc. **"ANGIER'S," Dept. B., Streator, Ill., U. S. A.**

## ALLEN'S SUPPLY CATALOGS

Regular and Ford Special. Sent on request.

**Fred Allen Auto Supply Co.**  
1610 Michigan Ave., Chicago, Ill.

## ALL PARTS IN STOCK AT DISCOUNT

Atlas, Bergdoll, Chalmers, Ewing, Alco, Packard, Hudson, Herreshoff, etc. Timken Axle Parts. Brown-Lipe Gear Parts. Continental Motor Parts. STA-RITE Rings, \$1.00 each. Regular Piston Rings, 30c each.

**JOS. C. GOREY & CO.,**  
354 W. 50th St. New York City

**American Underslung and Marion**  
Motor Car Parts and Service.

**CHARLES E. RIESS & CO., Inc.**  
1690 Broadway, New York

**ANY AND ALL PARTS FOR 1912**  
Cadillac, 60% Off List Price

**Backus Novelty Co.,** Smethport, Pa.

## AT HALF PRICE

200 Storage Batteries, all makes, new and used, 6-80 to 6-160, \$5.00 to \$12.00. We exchange new batteries for old ones.

**SIMPLEX BATTERY CO.**  
120 E. 33rd Blvd. Chicago, Ill.

## ATTENTION, HENRY OWNERS

We are prepared to fill orders promptly for repairs for Henry cars.

**MUSKEGON AUTOMOBILE CO.**  
Muskegon, Mich.

## AUTO PARTS

Motors 4"x5, four cylinders, at.....\$198.00  
Pressed steel frames at..... 15.00  
Steering gears, complete (R. H.), at.... 12.50  
Radiators for 30 H. P. cars at..... 11.00  
Parts of all kinds, including axles for small cars  
Also the following

## SPECIAL FAST SPEEDSTERS

Car to go not less than 70 miles per hour..\$1250  
Racer to go not less than 90 miles an hour. 3500  
Above cars are new, not used or second hand.

**G. J. G. Motor Car Company**  
WHITE PLAINS, N. Y.

## AUTOMOBILE PARTS

**MICHIGAN, MORA AND**  
**DRAGON PARTS IN**  
**STOCK**

We maintain a complete stock of parts for the above cars.

**PHILADELPHIA MACHINE WKS.**  
67 Laurel Street, Philadelphia, Pa.

## AUTO SALVAGE COMPANY

1436 Wabash Ave., Chicago, Ill.  
2-cyl. Buick parts. E. & S. Master Vibrator.  
new. \$4.00. Stoddard-Dayton trans. 20 H. P.  
\$30.00. Flanders parts. I. C. H. Parts for sale.  
Maxwell 4 cyl. unit power plant, \$100.00.

**AUTO TOPS BUILT AND REPAIRED**  
Seat covers and body building, remodeling and  
trimming. Write for prices.

**BITELY TOP & BODY CO.**  
1342-4 W. Jackson Blvd. Chicago, Ill.

# Auction Auction

In the Matter of

## Henderson Motor Car Company

On

**Thursday, Oct. 15, 1914**

Commencing at 10 o'clock A. M.  
Sharp, at

**Indianapolis, Indiana**

we will sell at public auction all assets belonging to Henderson Motor Car Co., manufacturers of the "Henderson."

Sale includes 12-4 and 6-cylinder Henderson cars, 2 trucks, machinery, material, automobile parts, a very fine lot of standard supplies, etc.

We will commence sale by offering the Good Will of the company continuing on machinery, material, cars, etc., until contents of the entire plant is disposed of, which it is expected will not take more than one day.

Descriptive circulars of the sale are being issued and will be mailed upon request, made at office of auctioneers.

Stock will be on exhibition two days before sale.

**Samuel L. Winternitz  
and Company**

**Auctioneers**

Room 506, 79 West Monroe St.  
(Rector Building)

**CHICAGO**

## BALL BEARINGS REGROUND

We guarantee them as

**GOOD AS NEW**

All sizes and makes in stock ready for immediate delivery—At prices that will interest you.

**AHLBERG BEARING CO.**  
2636 Michigan Ave., Chicago. 1790 Broadway,  
New York. 805 Woodward Ave., Detroit.  
93 Massachusetts Ave., Boston. 1841  
Euclid Ave., Cleveland, Ohio.

## BATTERY BARGAINS

We are selling our 1914 stock of lighting and ignition batteries at a big reduction. Only a few more on hand—half price, \$5.00 to \$10.00. Limited number of Elba starting and lighting batteries at cost. Write today.

## THE AMPVO BATTERY CO.,

3031 Michigan Ave. Chicago, Ill.

CoCoa and Carpet Mats, Hand Made Seat  
Covers, Auto Tops Built and Repaired.

**AUTO CAPE TOP CO.,**  
2334 Michigan Ave. Chicago, Ill.

## CUT PRICES

Send for our illustrated cut price auto supply catalogue.

**Liberty Tire & Supply Co.**  
100 Chambers St. New York, N. Y.

## DESIGN FOR LIGHT CAR

The designer of three successful cars will sell a limited number of complete sets of prints for a four cylinder light car. Shaft drive and handsome and up-to-date design, composed of standard units easily obtained and reasonable prices. Complete set of prints, list of parts and where obtained for \$5.00. Money returned if not satisfactory. Send for information and sketch of car.

**Fenton Engineering Co., Fenton, Mich.**

## DETACHABLE TONNEAU

Get Our Circular

**"THREE FORDS IN ONE"**  
**FORD DELIVERY BODIES**  
**\$75—Painted Complete**

Also Racing Bodies  
**AUTO REMODELING CO.**

1501-5 Michigan Ave. Chicago, Ill.

## F. & H. WIRE WHEELS

Equipped with F. & H. Special Wire Wheel Rims. Adaptable to any car. Complete equipment for Ford cars.

**THE F. & H. WIRE WHEEL CO.**  
Columbus, O.

## Ford Automobile Specialties

are guaranteed satisfactory or money refunded. Write for free catalog.

**Auto Parts Co., Providence, R. I.**  
The Largest Ford Specialty Makers  
in the World

## FORD DASH BOARD OIL GAUGE

Insurance against burned out bearings. Solid brass. An essential for every Ford car. Price \$2.00. Get one today.

**STANDARD PURCHASING CO.**  
16 Exchange Place New York

## FORD DELIVERY BODIES

12 styles, all sizes. Agents wanted everywhere.  
**COLUMBIA BUGGY CO.,**  
21-23 Selden Ave. Detroit, Mich.

## FORD OWNERS

Equip your cars with Seat Covers. Our direct to car-owners plan will save you money. Ten thousand satisfied customers last year.

## GLOBE SEAT COVER CO.

Dept. M, **RACINE, WIS.**

## FORD T RADIATORS \$17.25 NET

We are making the above offer to close out. Radiators are new throughout. Shells for painting. Cast brass bracket supports. Former price \$25.00. Only a few left.

**WRIGHT COOLER & HOOD CO.**  
8th St., Muskegon, Mich.



# The Clearing House—continued

## FORE DOOR BODIES

1914 Models, five-passenger, fully upholstered; fit most any car. Cost \$350.00; our price, while they last, \$85.00. Write for full description.

### THE M. & M. COMPANY

480-500 Prospect Ave., Cleveland, Ohio

## FOR SALE

A small number of modern, well designed and constructed six, five and four-passenger touring bodies and comfortable roadsters painted and trimmed. Will change and guarantee to fit your car. Write us.

### IRVIN ROBBINS & CO.

Industrial Building, Tenth and Canal  
Indianapolis, Ind.

## FOR SALE AT A BARGAIN

New 5x6 four-cylinder, governor-controlled engine, fully equipped, with carburetor, magneto. Will sell for much less than cost. **FRED HANSON, 570 Prior Ave., St. Paul, Minn.**

**Grind Your Valves**—The American valve facing and seating tools are instantly adjustable to any automobile, motorcycle or truck; perfect and complete work in thirty minutes guaranteed; price \$10; complete set of two tools; C. O. D. express or parcel post; privilege of examination. The American Valve Tool Company, Stamford, Conn.

# GUARANTEED RADIATORS

Not always necessary to buy new radiators. New cores can be furnished for frozen or damaged radiators. We build the fin and tube type. Guaranteed copper fins and tube.

We also repair and furnish new cores for Maya radiators.

We build new cores for all makes and for all cars. Get our prices. You will save money.

Cores in stock for many standard radiators such as Hupps, Warrens, Herreshoffs, Buicks, E. M. F. 30, Studebaker, Hudson 20, Cadillacs and several others.

We can build and fit a new core in your radiator in two days—if in stock, in one day.

Write for bargain sheet of accessories.

### HURON RADIATOR & LAMP CO.

253-255 Jefferson Ave., Detroit, Mich.

Terms Cash with the order.

## Guaranteed Honeycomb Radiators

Eliminate your radiator troubles by putting our Honeycomb Radiators on your cars. Every one built right from the ground up, absolutely interchangeable, and will properly cool the motor.

Ford "T" .....	\$25.00
Hudson "20" .....	35.00
Hupp "20" .....	25.00
Buick 10-24-25-34-35-36 .....	27.50
Buick 16-17-19-26-27-28 .....	37.50
Buick 21-38-39-43 .....	37.50
Parry 42 .....	35.00
E. M. F. "30" .....	35.00

Write us on those not mentioned. We can duplicate any radiator.

### Detroit Radiator & Specialty Company

963 Woodward Ave. Detroit, Mich.

## JOBBER AND GARAGES

Get our proposition on fibre gears for all makes of speedometers. We make anything you want from fibre.

**OGDEN FIBRE GEAR & TIRE CO.**  
Columbus, Ind.

# Bargain Prices for 10 Days Only

4 cyl. Cameron A. C. motor, 22 H. P., slightly used .....	\$ 45.00
New motor with fan .....	70.00
4 cyl. Premier A. C. motor, 18 H. P., second hand .....	45.00
4 cyl. Reliance motor, 5 1/2 x 5 1/2 .....	75.00
4 cyl. 1912 Elmore 2 cycle motor .....	50.00
White Steamer 2 cyl. engine .....	25.00
2 cyl. upright Atlas motor and transmission with clutch, pump, etc. ....	85.00
2 cyl. opposed 4 1/4 x 4 W. C. Sullivan motor with oiler .....	65.00
2 cyl. opposed 4 1/4 x 4 A. C., with oiler, shopworn .....	45.00
2 cyl. opposed Davis motor with oiler, shopworn .....	75.00
1 cyl. Cadillac motor and transmission, second hand .....	30.00
New Hershell Spillman 5x6 4 cyl. motor with cone clutch .....	190.00
4 cyl. Mitchell 35 H. P. motor with oiler, A1 condition .....	100.00
4 cyl. Mitchell 4 1/4 x 7 motor, like new ..	175.00
New 40 H. P. motor for main frame support, with cone clutch, magneto and carburetor .....	181.00
New 6 cyl. 4x6 Croxton T head motor, carburetor, plugs and magneto .....	290.00
6 feed mechanical oilers, 4 1/2 x 8 x 11", end drive .....	6.00
6 feed Hill Precision oilers—while they last .....	3.00
New 4 speed and reverse selective transmission and levers .....	46.50
Oldsmobile 50 H. P. transmission, shaft drive .....	45.00
Columbia transmission, 30 H. P., with clutch .....	40.00
Haynes 50 H. P. transmission and levers ..	67.50
Transmission lever sets, slide control ..	6.00
8" fenders with mud skirts, set of four (4) ..	6.00
10" Midland fenders with mud skirts, set of four (4) .....	9.00
Barnes R. H. steering gears, 16" wheel ..	8.00
Ross cross steering gear, 16" wheel .....	8.00
Universal R. H. steering gear, 18" wheel, 48" long .....	16.00
1 ton Ross truck steering gears .....	12.00
Used steering gears less wheel .....	4.00
34 x 3 1/2 — 36 x 3 1/2 wheel, twelve spokes, 7" flange, Q. D. clincher rims, set of four (4) .....	8.00
34 x 4 wheels, ten 1 1/2" spokes, 7" flange, set of four (4) .....	8.00
36 x 4 Dem. Firestone wheels, twelve 2" spokes, 8" flange, set of four (4) .....	22.00
34 x 4 Continental dem. wheels, set of four (4) .....	20.00
5-passenger Midland fore door bodies, not upholstered .....	20.00
Upholstered .....	90.00
5-passenger American bodies, not upholstered .....	15.00
Upholstered and painted .....	90.00
Racing seats, painted and upholstered in muleskin, pair .....	23.00
Touring car mohair shopworn tops with curtains, each .....	23.50

## AXLES

New A. O. Smith full floating with hubs and drums .....	\$ 75.00
New Hess full floating axle with hubs ..	65.00
New Weston-Mott full floating axle, 50 H. P. ....	70.00
New Weston-Mott semi-floating, 35 H.P. ..	40.00
New I-beam axles with ball bearing hubs ..	12.00
Shaft drive Columbia axle with hubs .....	25.00
Cadillac chain drive axle and front axle, pair .....	20.00
Chain drive jackshaft for truck .....	15.00
Shaft drive jackshaft, 4-1 ratio .....	35.00
1 1/2" sq. solid roller bearing axles with hubs .....	23.00

50% With Order. Balance C. O. D.

## ONE THOUSAND OTHER SPECIAL BARGAINS

## AUTO PARTS COMPANY

737-739 W. Jackson Blvd.  
CHICAGO, ILL.

## HERRESHOFF MOTOR CAR OWNERS

This company has been reorganized under new management.

We are now located in our new Indianapolis plant and are in position to give first class service on all repair parts for all models of Herreshoff cars.

Eastern owners can get first class service by writing our EASTERN BRANCH at 2200 Diamond street, Philadelphia, Pa.

For prompt, first class service write direct to our factory at South Meridian street and Belt R. R.

## HERRESHOFF MOTOR COMPANY

South Meridian St. and Belt R. R.  
INDIANAPOLIS, IND.

# Matheson

## Cars — Repair Parts

Some Unusual Opportunities for all Models kept fully sized up

**FRANK F. MATHESON, Wilkes-Barre, Pa.**

## Maxwell Owners and Repairmen

Why pay 20 per cent advance for your parts? We can supply 75 per cent of your wants at the old Maxwell-Briscoe list. Stoddard-Dayton transmission and equalizing gear parts at old list. Why pay more?

SEND FOR PRICE LIST

**M. P. SUPPLY COMPANY**  
ATLANTA, GA.

## NOTICE

### Big Cut in Prices on Fore Doors 30 DAYS ONLY

Fords, any model .....

Any other make .....

Doors made special for each car

Guaranteed to Fit Dept. F Order Now

**E. W. SHOWALTER & CO.**

315 N. Penn Street Indianapolis

## Original Repair Parts Factory

We furnish repair parts for over 53 models of cars. Own original patterns, tools, etc., including Warren, Elmore, Marquette, Rainier, Welch-Pontiac, Welch-Detroit, F. A. L., Reliable-Dayton, Barnes, De Luxe, Demot, also Michigan, Cutting and many others. Everything for every auto.

**Puritan Machine Company**  
Detroit, Mich.

# The Clearing House—continued

## Paint Your Car Yourself

Save \$25 to \$75 by doing the work at home with the Arsenal system. Our big free booklet, "The Car Beautiful," tells how. Send for it today.

**Arsenal Varnish Company**  
Auto Dept. Rock Island, Ill.

## RADIATOR BARGAINS

Ford Model T Honeycomb.....	\$17.00
Buick 16-17.....	28.50
Buick 10 Honeycomb.....	20.00
Hudson Model 20 and 30.....	28.50

Write for Other Radiator Bargains

**AUTOMOBILE APPLIANCE CO.**  
1436-38 S. Michigan Ave. Chicago

## RADIATORS

### WHILE THE STOCK LASTS

Name.	Model.	Price.
Brush.....	All Mod.	\$10.00
E. M. F.....	30	15.00
American.....	30	20.00
American.....	34	21.00
American.....	56	22.00
Krit.....	All Mod.	18.00
Nyberg.....	4-Cy.	20.00
Nyberg.....	6-Cy.	22.00
Westcott.....	6-Cy.	20.00
Stoddard-Dayton.....	All Mod.	20.00

**The M. & M. Company**  
500 Prospect Ave. Cleveland, Ohio  
Do You Want Our Big General Catalogue?  
It's Yours for the Asking.

## Peerless Extra Fine Black Japan

Made especially for all around work on metal and wood parts of an automobile. Air drying over night with a rich gloss finish. One coat covers solid. Ask your garage, dealer, jobber.

The Columbus Varnish Co., Columbus, O.

## PARTS FOR ALL CARS

100 Assorted Cap Screws.....	\$ .50
100 Assorted Nuts.....	.50
100 Assorted Rivets.....	.20
100 Assorted Washers.....	.35
Brake Rods with clevis pins 3/4 and 1/2.....	.35
Automobile Springs for many cars.....	3.00
Oakland Radiators.....	25.00
Radiators for many other cars.....	20.00
Roadster Bodies—Painted and Upholstered.....	55.00
Touring Car Bodies—finished.....	75.00
Front and Rear Fenders, each.....	3.00
Weston Mott Rear Axles.....	20.00
Front Axles.....	10.00
Wheels—all sizes.....	3.00
Square Gasoline Tanks.....	1.00
Round Gasoline Tanks, 12x29.....	2.75
Tool Boxes with two locks, 29x12x9.....	1.50
Hupp Touring Car Tops, Model D.....	12.00
Motor Driven Electric Horns.....	7.50
Kingston Carburetors, 1 1/4" top intake.....	3.95
Fletcher Carburetors, 1 1/4" top intake.....	3.95
Mondex Shock Absorbers, set of four.....	15.00
Vibrator Horns.....	2.49
Tire Covers, many sizes.....	.75
Standard Speedometers.....	7.00
Spark Plugs, all sizes.....	.19
Lunkenheimer Regulators.....	1.00
Complete Tool Kits.....	1.09
15" Straps.....	.05
Motor Fans.....	3.00
15" Steering Wheels, 1/2" hole.....	1.00
Clear Vision Windshields.....	7.90
Tire Chains, 36x4 1/2, 35x4 1/2.....	3.09
Tire Chains, 28x3, 30x3.....	2.50

**PURITAN MACHINE CO.**

Detroit, Mich.

ALL PARTS

ALL CARS

## Liquidator's Sale

### Complete Marquette Auto Plant

#### Extraordinary Price Inducements

I have been authorized to dispose of the entire lot of automobile parts, supplies, accessories, tools, bodies and everything for the automobile, including parts to build a complete car. This is the biggest lot of parts ever offered at direct sale.

Spark Plugs.....	\$ .19
End Wrenches.....	.15
Magneto Boots.....	.50
Dash Air Pumps.....	.79
Starting Crank Boots.....	.30
Gasoline Strainers.....	.50
Tall Lamps, Oil.....	1.50
Tall Lamps, Electric.....	1.75
Side Lamps, Oil.....	1.50
Side Lamps, Combination.....	1.75
Gas Head Lamps, per pair.....	6.25
Electric Head Lamps, pair.....	7.50
Pressed Steel Frames.....	12.19
Steering Gears, "Gemmer".....	8.19
Steering Gears, "Jacox".....	40.00
Weston Mott Rear Axles.....	45.00
Sliding Gear Transmissions.....	50.00
4 speed sliding gear transmissions with multiple disc clutch.....	20.00
Fore door roadster bodies—in rough.....	55.00
Fore door roadster bodies—painted and upholstered.....	65.00
Touring car bodies—painted and upholstered.....	18.50
Model H High Tension K.W. Magnets.....	20.00
Hartford Shock Absorbers—set.....	15.00
E. Z. Rider Shock Absorbers for Ford Roadster and Touring Cars—set.....	125.00
40 H. P. Motors.....	5.50
Exide Batteries.....	3.00
Wheels, all sizes.....	10.00
Front Axles.....	2.49
Electric Horns.....	5.19
Carburetors—Rayfield, Schobler, Kingston and Fletcher.....	9.00
Windshields.....	8.19
Stromberg Carburetors.....	3.00
1-inch Buffalo Carburetors.....	3.00
Oval Gasoline Tanks—11x22x29.....	15.00
Straight High Tension Volta Magnets.....	20.00
4 Cyl. Remy Magnets with coil.....	2.25
Ford Lighting Outfit.....	25.00
Ford Light Generators.....	.80
Ford Wheel Fullers.....	8.20
Rayfield Carburetors with Manifold for Ford Model "T".....	.30
Ford Oil Gauges.....	.19
Ford Spark Plugs.....	6.00
4 Cyl. Remy Coils.....	6.00
Splitdorf Coils.....	7.00
Standard Speedometers for 36x4 wheels.....	9.95
Stewart Speedometer Heads.....	1.25
Tool Boxes—18x8x9.....	1.50
Tool Boxes—24x8x8 1/2.....	1.00
Electric Side Lamps—for cycle cars.....	.25
Brake Lining, per foot.....	.85
Tire Repair Kits.....	.35
Front and Rear License Brackets.....	1.00
Steering Wheels.....	.75
Tire Covers—any size.....	.85
3/4 and 1/2 Brake Rods with clevis.....	1.50
Mufflers, 1 1/2" opening.....	6.00
Foster Shock Absorbers, set.....	80.00
Rear Axle with unit transmissions.....	1.00
Assorted spring clips, per doz.....	.50
100 Assorted Cap Screws.....	.50
100 Assorted Nuts.....	.20
100 Assorted Rivets.....	.85
100 Assorted Washers.....	.25
Erie Pipe Wrenches.....	.75
Watch dog locking devices.....	9.50
Warner Autometers—complete.....	3.50
Rumble Seats.....	1.25
Tool Boxes.....	.35
Robe and Foot Rests.....	1.00
Auto Jacks.....	1.50
Tire Pumps.....	.50
Metal Polish—1/4 and 1 gal. cans, per gallon.....	1.09
Auto Soap, 5 and 10 lb. cans, per pound.....	8.09
Tool Kits.....	.75
Tire Chains, many sizes, for.....	.79
Bulb Horns—complete.....	3.50
Vulcanizers.....	20.00
Stewart Gas Savers.....	3.00
Radiators for many cars.....	
Spring—many sizes.....	

Almost Everything at a Special Low Price—

Send for Big Catalogs

**Alfred O. Dunk**

Liquidator

412 Lafayette Boulevard

Detroit, Michigan

This is my fifty-third sale. I have closed out that many factories.

## Peerless Jet Black Fender Japan

Fenders finished in a rich, black, heavy bodied japan. Air dries in thirty-six hours. One coat covers solid. Buy it from your garage, dealer, jobber.

The Columbus Varnish Co., Columbus, O.

## Save Money

On All Your

## Auto Supplies

In conjunction with our large automobile department we have an accessory department where we carry everything necessary for the automobile at

### PRICE WRECKING PRICES

To give you a clearer conception of the amount you save in doing business with us we have listed 3,000 bargains in our

### PRICE WRECKER No. 40

Write for it at once. It's free and a "Big Money Saver."

## Times Square Auto Company

**NEW YORK** | **CHICAGO**  
S. W. Cor. | 1210-1212  
Broadway & 56th St. | Michigan Ave.

## Peerless Cylinder Enamel

Saves your engine and metal rods from rust. Makes a smooth finish that is not affected by heat, gasoline or grease. Black or gray, as desired. Buy it from your garage, dealer, jobber.

The Columbus Varnish Co., Columbus, O.

## TOOL KITS

Special Sale of Complete Tool Kits  
Why pay \$5.00 when you can get a standard kit complete for \$1.09?

**PURITAN MACHINE CO.**

Detroit, Mich.

ALL PARTS | ALL CARS

## We Make Ford Racing Type Bodies

In several models for immediate delivery  
**AUTO SHEET METAL WORKS**  
1532 Michigan Ave. Chicago, Ill.

**YOU CAN CHANGE YOUR CAR**  
into raceabout yourself. We furnish radiators, hoods, seats, tanks and fenders. Get our prices.  
**AUTO SHEET METAL WORKS**  
1532 S. Michigan Ave. Chicago, Ill.

## WONDER-MIST

The most economical, efficient and practical body polish and cleanser in the world. Use the spray and eliminate using water above the chassis.

Especially adapted for automobiles.

**WONDER-MIST CO., Boston, Mass.**  
New York | Chicago

**\$100 Is the Cost of the Acme Cylinder Grinder.** An attachment for a lathe that will grind automobile cylinders round and straight. Particulars on request.

**ACME GRINDER CO.**  
2740 Humboldt Ave., So. Minneapolis, Minn.

## Peerless Mirroroid

Like varnish. It dries with a rich gloss finish. Apply with a cloth to old varnished surfaces. Leaves a durable finish that will dry in four to five hours. Buy it from your garage, dealer, jobber.

The Columbus Varnish Co., Columbus, O.



# The Clearing House—continued

## Peerless Auto Body Polish

Adds life and color to old varnished surfaces. Dries without a greasy smear that will not collect dust or dirt. Buy it from your garage, dealer, jobber.

The Columbus Varnish Co., Columbus, O.

## We Tear 'Em Up and Sell the Pieces

We want old autos, condition no object. We will buy anything for the auto. We have all kinds of parts, many of them new, are at unheard of low prices. Tires and tubes, many new, others used. Kingston carburetors, all sizes; will exchange for others. Gears of all kinds, new gas oval tanks, new timers, magnetos, coil, Stewart speedometers, shafts and chains, tire covers, dust hoods, electric horns, new brass bumpers, lamps, all kinds; Prest-O-Lite tanks, rollers, cylinders, pistons, transmissions, crankshafts, seats and bodies; new 30x3½ wheels, many other used sizes; rims; several chassis without engines; 2-cylinder, 4-cylinder, 6-cylinder engines; springs; in fact, everything that an auto needs. Correspondence solicited. If we do not have it, will advise you where you can get it. FOLLOWING MOTORS NOW IN STOCK PRICED FOR QUICK SALE:

4-cyl. Jackson engine, model 38.....	\$100.00
4-cyl. Stevens-Duryea engine, model R, 24 h.p. ....	90.00
4-cyl. Ford engine, model B, 20 h.p. ....	50.00
4-cyl. King 1913 engine, 30 h.p. ....	100.00
4-cyl. Pope Toledo engine, 50 h.p. ....	75.00
2-cyl. Rambler engine, 20 h.p. ....	30.00
4-cyl. model N Ford engine, complete, 15 h.p. ....	50.00

Can furnish any ignition system for motors at small additional figure.

Will sell any part of these or other motors. New fresh stock storage battery.

OUR GUARANTEE TO ALL—IF NOT SATISFIED WITH YOUR PURCHASE, RETURN AND WE WILL REFUND YOUR MONEY.

## AUTO WRECKING CO.

Old Church, 13th and Oak  
KANSAS CITY, MO.

## 10,000 Miles Without Punctures

10,000 miles without punctures or slow leaks, and doubled mileage. Porous tubes repaired in five minutes with "Sin-Ti" Puncture Fluid, the practical puncture eliminator. All at small cost of 50c per 3 or 3½ inch tube, 75c per 4 or 4½, \$1 per 5 or 5½. Satisfaction or money back. Literature upon request.

## SIN-TI TIRE CO., Washington, D. C.

50 CENTS KEEPS YOUR CAR BRIGHT for a whole season. By using That Mysterious Rag Duster. Can't be beat. Polishes auto bodies, lamps, windshields, etc. Satisfaction guaranteed or money refunded. GEM SUPPLY CO., 1036 S. Main St., Waterbury, Conn.

## PARTS AND ACCESSORIES WANTED

WANTED TO BUY  
Job lots of auto tires and accessories.  
Peerless Tire & Rubber Co.  
Louisville, Ky.

## PATENTS & PATENT ATTORNEYS

C. L. Parker, Patent Attorney  
Formerly member Examining Corps, U. S. Patent Office, 960 G St., Washington, D. C. Pamphlet of instruction sent upon request.

## PROTECT YOUR IDEAS

Send for free book and free search plan.  
MILO B. STEVENS & CO.  
53 W. Jackson Blvd., Chicago  
Established 1864 Main office, Washington

## RADIATOR AND LAMP REPAIRING

### A. A. A. Radiators Manufactured

Any make repaired and returned same day. Radiator to fit any car shipped in 3 days.

SHEPPARD CO., 1331 Jackson Blvd., Chicago

A. A. A. WE REPAIR AUTO RADIATORS, Lamps, Fenders, Wind Shields, Tanks and Horns of all kinds. Bargains always on hand. Estimates given.

HUDSON AUTO LAMP WORKS, Inc.,  
1648-50 Broadway New York

ALL KINDS OF AUTO RADIATORS, HOODS, fenders, lamps, windshields, etc., rebuilt and repaired. All work guaranteed. Phone or mail order. Telephone Calumet 4583.

L. BLUMENFELD & CO.  
1919 Wabash Ave., Chicago

AMERICAN AUTO SHEET METAL WORKS  
We are masters of the trade. Manufacturers of Radiators, Hoods, Fenders, Gas Tanks, etc. Repairing a specialty.

1446 Wabash Ave., Chicago, Ill.

ANY MAKE OF RADIATOR MANUFACTURED or repaired. One day required for repairs; two days for a new radiator. Hoods, fenders, gas-line tanks, lamps, etc.

WABASH AUTO RADIATOR MFG. CO.  
1137 S. Wabash Ave. Chicago, Ill.

### ARROW RADIATOR REPAIR CO.

1331 Wabash Ave., Chicago, Ill.  
Expert repair work on Radiators, Hoods, Fenders, Dashes, Tanks and Drip Pans.  
We guarantee all our work  
Phone Calumet 1995

Before Ordering Elsewhere Get Our Prices on new radiators, hoods, fenders, tanks and for installing new cores in old or damaged radiators. Radiator repairing our specialty.

ILLINOIS AUTO SHEET METAL WORKS  
58-60 E. 16th St., Chicago, Ill.

## CHICAGO MFG. CO.

1466 Michigan Avenue, Chicago

We are the only radiator manufacturers in Chicago making a square tube radiator. New guaranteed cores placed in old radiators. We also manufacture Hoods, Fenders, Tanks and Pans and do guaranteed repair work. Prompt service.

### DULUTH AUTO RADIATOR AND LAMP REPAIR WORKS

We repair burnt, frozen and wrecked radiators; also auto fenders; hoods and tanks made to order. Shipments promptly taken care of.  
336 E. Superior Street Duluth, Minn.

### M. & L. Auto Sheet Metal Works

Rebuild and repair radiators, hoods, fenders, tanks, lamps, etc. Tel. Calumet 2348.  
1551 Michigan Ave., Chicago, Ill.

### ONLY RADIATOR FACTORY IN NORTHWEST

Pioneer manufacturer. Why send your radiator down east when you can ship it to us; save time, express, freight, money, and get best workmanship. Prices right. Make new radiators, allow for old one.

TODD MANUFACTURING CO.  
820-824 Mary Pl. Minneapolis, Minn.

## REBUILDING AND REPAIRING

### ANDRE G. CATELAIN

Manufacturer Catelain Hose Coupling  
EVERREADY AUTOMATIC ENGINE STARTER  
Sales and Service. Special Starter for Fords.

General Machine Work for  
FOREIGN AND AMERICAN CARS  
Carbon removed with oxygen.  
Welding of All Kinds of Metal  
1446-8 Indiana Avenue Chicago

## A NEW MOTOR

made out of your old one; we will rebore and grind your cylinders and make new pistons and new rings, the whole operation to be up-to-date factory methods. Write or 'phone for prices on your car.

### STARBUCK AUTOMOBILE CO.

Baltimore Ave. and Fernwood, Reborning Dept.  
Philadelphia, Pa.

### CYLINDER REBORED

Including piston and rings.....\$7 to \$11

### STERLING ENGINE CO.

331 So. Clinton Street Chicago, Ill.

## CYLINDERS REBORED AND REGROUND

Fitted With My Light Cast Iron Pistons

40% to 100% lighter than standard, and with my new rings, makes a four run like a six, with a guaranteed gain in efficiency of from 25% to 50%.

### McCADDEN MACHINE WORKS ST. CLOUD, MINN.

### CYLINDERS REGROUND

and fitted with new pistons and rings for \$7 to \$11 per cylinder. We do this class of work exclusively and are thus able to give you the highest class of work at these prices.  
Oxy-acetylene welding done at reasonable prices

### CROWN MACHINE SHOP

Crown Point, Ind.

## MR. MOTORIST

If you take particular pride in the operation of your motor, and you certainly should, YOU should investigate the claims I make for my extra light pistons and connecting rods and my special design piston rings. All these parts being designed with the special idea of increasing the efficiency and decreasing the noise and vibration of your motor.

### CYLINDERS REGROUND ABSOLUTELY ACCURATELY

Lee W. Oldfield

MINNEAPOLIS

MINNESOTA

## STOP THAT KNOCK LET US EQUIP YOUR ENGINE WITH OVERSIZE

Hardened and Ground Wrist Pins  
Cylinder Grinding Crank Shafts Straightened

### ADAPT MACHINERY CO.

1624 So. Wabash Ave. Chicago, Ill.

## FORD

Cylinder Grinding  
New Pistons, Rings, Pins

Our special equipment for grinding Ford Model T cylinders enables us to fit new pistons, new rings, and piston pins on short notice. A complete job better than new at prices that will interest Ford dealers as well as owners.

Write at once to

### AUTO ENGINE WORKS St. Paul, Minn.

### WE REGRIND CYLINDERS

Furnish our heat treated piston rings and pistons. First-class equipment, 15 years' experience. Write for our prices.

BRIDGEPORT PISTON RING CO.  
Bridgeport, Conn.

# The Clearing House—continued

## SCHOOLS

**AAAA—COME TO DETROIT**, the "Automobile Center," and learn the business in the largest and best equipped school in the country. **MICHIGAN STATE AUTO SCHOOL**, 11-19 Selden St., Detroit. "The Old Reliable School."

## FREE BOOKLET

"How to Succeed in the Automobile Business," on application. A Greer diploma guarantees efficiency. Largest motor college in the world—1,400 graduates—\$40,000 in modern equipment—eight instructors—actual work, repairing and driving—Day and evening classes—many owners and dealers employ Greer graduates only. **GREER COLLEGE OF MOTORING** Chicago's "Safety First" Automobile School 1456 Wabash Ave. Chicago

## LEARN REPAIRING

On every make, driving on dozens of cars, starting and lighting with largest equipment in America; steam vulcanizing, oxy-acetylene welding and everything known to this business. A \$20 to \$50 course brings you \$1,000 to \$2,500 a year.

**Academy of Automobile Engineering** 1452-54 Michigan Ave., Chicago, Ill.

**THE AUTOMOBILE BUSINESS OFFERS** wonderful opportunities. We are placing men from all parts of the country in good paying positions. Send for Booklet "M."

**STEWART AUTO SCHOOL** Chartered by N. Y. State Board of Regents 225 W. 57th Street New York City

## STORAGE AND SHIPPING

**P. BRADY & SON CO.** Trucking and Storage. Automobiles and Bodies Stored. Automobiles boxed for Export. 552-558 W. 58th Street, New York Telephone 3440 Columbus

## TIRES

### A1 GUARANTEED TIRES AT BARGAIN PRICES

What make do you want? What size? **EMPIRE VULCANIZING CO.** 2400 S. Wabash Ave. Chicago, Ill.

**Auto Tires Recovered as Follows**  
 30 x 3 ..... \$5.81 32 x 3 1/2 ..... \$7.80  
 30 x 3 1/2 ..... 7.20 34 x 4 ..... 9.65  
 36 x 4 1/2 ..... \$12.00

Non-Skid Treads applied from \$1.00 to \$3.00 extra. Workmanship and material guaranteed. A trial will convince. Repairing tires since 1896.

### JUNGKIND & VOGLER

158 Chambers Street, N. Y. City  
 Branch, 1100 Bedford Avenue, Brooklyn, N. Y.

## TIRE DEALERS

Send for our tire proposition. We have a tire that will make YOU independent of seconds for low priced tires. Send Today—NOW!

### PEERLESS TIRE CO., INC.

304 West 54th St. New York, N. Y.

## TIRE REDUCTIONS!!

These tires are all of heavy car type of a well known manufacture. They are slightly blemished and average 5,000 miles service. 30x3, \$6.75; 30x3 1/2, \$8.50; 32x3 1/2, \$8.60; 33x4, \$12.40; 34x4, \$12.50; 36x4, \$13.75. All other sizes. Non-skids, 10 per cent higher.

### TIRE SALES CO.

931 Main St. Buffalo, N. Y.

## BARGAINS—TIRES—BARGAINS

In Guaranteed, Seconds and Used Tires

Write for our prices

**ACME TIRE REPAIR COMPANY** 1547 Michigan Ave. Chicago, Ill.

## Make Two Old Tires

do the work of a new one. Send us two of your old casings, regardless of their condition; by our process we return you the two tires made into one ready for 2000 miles of actual service. We guarantee this mileage absolutely. We are doing it for others. Send us two old tires today, or write and ASK US HOW.

## COWANS BROS.

150 W. 55th St. New York City

## TIRES! TIRES!

### ALL FRESH SELECTED SECONDS

30x3 .....	\$ 7.00	34x4 .....	\$14.75
30x3 1/2 .....	9.25	35x4 1/2 .....	19.50
32x3 1/2 .....	9.75	36x4 1/2 .....	19.75
33x4 .....	14.35	37x5 .....	23.75

All other sizes in stock. Non-skids, 10% extra. All orders C. O. D. on approval.

### GUARANTEE TIRE & RUBBER COMPANY

1111 Hennepin Ave., Minneapolis, Minn.  
 234 N. Broad St., Philadelphia, Pa.

## 800 TIRES—ANY SIZE

### NEW, FRESH STOCK—BEST MAKES

28x3 .....	\$ 6.90	30x4 .....	\$13.75
30x3 .....	7.60	34x4 .....	15.50
32x3 .....	8.20	32x4 1/2 .....	18.00
30x3 1/2 .....	10.50	34x4 1/2 .....	19.50
32x3 1/2 .....	10.90	36x5 .....	23.90

Other sizes in proportion.

### SERLIN TIRE COMPANY

1073 14th Place Chicago, Ill.

## WANTED---AGENTS & SALESMEN

**SALESMAN**—To sell guaranteed automobile tires and tubes upon a profitable and attractive plan. Representatives throughout the states of Illinois, Indiana and Iowa wanted.

**PAROK TIRE CO.**, 451 Rush St., Chicago, Ill.

## Opportunities for Live, Responsible Individuals or Firms

to Make Money Selling GASOLETTE.

Choice territory open.

Dealers who sell Gasollette sell a highly serviceable product, and incidentally make a lot of money.

Gasollette users buy it as regularly as they buy oil and fuel. When you make a Gasollette customer you keep him.

Gasollette poured into gasoline increases mileage from 40 to 60 per cent. Guaranteed to contain no ingredient injurious to motors. Gives motors greater power, more speed and 100 per cent flexibility. Prevents pre-ignition, pounding and overheating of engine. Guaranteed to remove and prevent carbon deposits.

Quart Can (Will Treat 64 Gal. Gasoline), \$1.35

Sent prepaid upon receipt of price.

Write for our unique co-operative sales proposition.

### UNITED PRODUCTS MFG. CO.

Dept. M, 219 E. 22d St. Chicago, Ill.

**WANTED:** Salesmen at liberal commission to sell Ford Auto-Starters County Agencies in any state west of the Mississippi River. A great side line. **THE BUCKEYE AUTO-STARTER CO.**, 57 Main St., Deshler, O.; 519 McGee St., Kansas City, Mo.

## EXCLUSIVE AGENTS WANTED IN UNALLOTTED TERRITORY

A very small investment will make you our exclusive sales agent in your territory for the world's quickest wrench. It is the Cochran "Speednut" Wrench, which automatically and instantaneously takes a lightning grip on any nut from 1/4" to 3/4". One man in two weeks cleared over \$750.00. You can sell to eight out of every ten prospects.

**HENES SALES CORPORATION** 179 W. Washington St. Chicago, Ill.

## Men With Patentable Ideas

Write **RANDOLPH & CO.**

Patent Solicitors

Dept. 331, Washington, D. C.

## WELDING

### AAI WELDING OF ALL METALS

Cast iron and aluminum a specialty. **ADVANCE WELDING MACHINE COMPANY** 525 W. Jackson Blvd. 111 N. Desplains St. Phones: Monroe 3937; Auto. 36-192. Chicago, Ill.

### AMERICAN WELDING CO.

2637 Michigan Ave., Chicago Autogenous welding of all metals, such as crank cases, cylinders, etc. We positively guarantee all work. Tel. Calumet 3563.

### AUTOGENOUS WELDING!

Expert welders on automobile parts. Manufacturer of the Galbraith Welding Torches.

**C. SORESENSEN**

18 E. Sixteenth St. Chicago

### Absolutely Guaranteed Welding

We absolutely guarantee all work done by the **OXWELD PROCESS** of welding and cutting, including welding cracked or defective cylinders, crankshafts, housings, aluminum crank and transmission cases, etc., etc. Estimates furnished on job and contract welding and cutting of all kinds.

### OXWELD ACETYLENE COMPANY

36th St. and Jasper Pl., Chicago, Ill.

## WELDING

Cylinder, crankcase and crankshaft welded. Cylinders rebored, \$7 to \$11 a cylinder, including piston, 8 rings.

### STERLING ENGINE COMPANY

331-333 S. Clinton Street Chicago, Ill.

## MISCELLANEOUS

### We Are Constantly in Touch

with employers requiring High-Grade Engineering service. Are you listed with the **TOLEDO ENGINEERING AGENCY** Toledo, Ohio

Now is the time to dispose of your parts and accessories thru the Clearing House columns of Motor Age. For full particulars address

### MOTOR AGE

910 South Michigan Avenue CHICAGO

## The PARISH & BINGHAM COMPANY

### PRESSED STEEL FRAMES

Write for Estimates

CLEVELAND, OHIO



## Greenslade Oil Co.

Main Office, Detroit, Mich.

Pacific Coast Agency,  
 Geo. L. and J. A. McPherson,  
 Portland, Oregon



# Classified Advertising

Rate 25¢ a Line

## Cars For Sale

**CADILLAC 1914 5-PASSENGER, EXCEL-**  
lent condition, \$1,300. Box 114, Marion,  
Ohio.

**FOR SALE—FIVE USED AUTOS. CHEAP**  
for cash; 2 E-M-F touring; 1 Regal under-  
slung touring; 1 60 H. P. Thomas; 1 racing  
car. W. F. Sinclair, Montpelier, Ind.

**FOR SALE—STANDARD ELECTRIC**  
Coupe; Model M; in first class condition.  
Gray Whipcord interior. Address F. R. Hall,  
Marietta, Ohio.

**FOR SALE—THREE-TON MOTOR TRUCK;**  
one of the best three-ton trucks on the  
market; 1913 model; A1 condition; has had  
seven months' service; best of reasons for  
selling; can be seen in operation. Address  
Box E 217, care Motor Age.

**FOR SALE—1914 WINTON; COMPLETELY**  
equipped. Condition guaranteed. \$1,850  
F. O. B. cars. No trade. Theo. D. Abeles,  
Little Rock, Ark.

**\$375 BUYS A NEW SAXON CAR; RUN**  
very little, reason for selling, want a  
5-passenger car; a bargain. Theo C. Becke,  
Carleton Neb.

## Cars Wanted

**FOR SALE OR EXCHANGE—LOT 25x125,**  
N. Central Park; price \$1,250; equity \$775  
for 5-passenger car; must be in first-class  
condition. 3435 West North Av., Chicago.  
Phone Albany 2562.

**\$700.00 EQUITY—160 ACRES OF GOOD**  
land five miles from county seat and on  
railroad now being constructed. Will take a  
second hand automobile in good running or-  
der for my equity, subject to a mortgage for  
\$900 due in two years at 6 per cent. Write  
to Fred A. Winger, Grand Marais, Minn.

**WANTED—PACKARD "38" OR "48" TOUR-**  
ing car, must have electric starter and  
lights, in exchange for 150 acres joining the  
town of Stratton, Kit Carson County, Colo.  
(main line Rock Island to Denver) good land  
and can all be farmed. Price \$25 per acre;  
mortgage of \$500. Want car for equity.  
Hall Land Co., Lincoln, Neb.

**WANTED—TO EXCHANGE 7-ROOM UN-**  
furnished cottage located southern winter  
resort for 1914 7-passenger six-cylinder tour-  
ing car. Mrs. M. E. Wirt, Chestnut Hill,  
North Bend, Catonsville, Md.

## Parts and Accessories FOR SALE

**FOR SALE—ONE NEW TWO-CYLINDER,**  
9-12 horse power Mack cyclocar engine.  
One pair friction drive transmission. One  
I beam front axle complete. Shunk Plow Co.,  
Bucyrus, Ohio.

**FOR SALE—SMALL ELECTRIC LIGHT**  
outfit for car, boat or house. Perfect con-  
dition. Address Box E 215, care Motor Age.

## Parts and Accessories WANTED

**WANTED—A THOMAS SURREY (TOR-**  
pedo) Body, 1912 style, upholstered, second  
hand, cheap. Give description. Lock P. O.  
Box 222, Greenport, L. I., N. Y.

**WANTED—PACKARD LIMOUSINE BODY,**  
either 1910-1911 or 1912 model, four-door  
Berlin type body preferred. State lowest cash  
price and condition. Address B. L. Maertz,  
806 Plum St., Cincinnati, Ohio.

## Situations Wanted

**COMPETENT CHAUFFEUR DESIRES PO-**  
sition, 8 years' experience, do all repairs,  
operate any car, strictly sober, married;  
would like year around position. Address  
Box E-188, care Motor Age.

**DESIRE POSITION AS TESTER OR RAC-**  
ing mechanic with some Motor Car Com-  
pany. Derl Kimler, Leroy, Illinois.

**SEEKING A SITUATION AS MOTOR**  
driver; do all running repairs; 5 years' ex-  
perience in Eng.; private place; good refer-  
ence; country preferred. H. C. Jones, Wake-  
field, Kansas.

**SITUATION WANTED—CHAUFFEUR,**  
driving experience, factory experience and  
technical graduate; best references; single.  
Address Box E 203, care Motor Age.

**SITUATION WANTED—FACTORY MAN-**  
ager or Superintendent. Eighteen years'  
experience in all branches. Address Box E  
221, care Motor Age.

## Business Opportunities

**FOR SALE AT A BARGAIN—GARAGE**  
with full equipment, including Bowser  
pump machinery, oil tanks, vulcanizer,  
Prest-O and Searchlight service. Located  
on Lincoln highway, where hundreds of  
tourists pass every day. Building can be  
leased for 5 years. Average gas sales 1,500  
gal. per week. A bargain at \$2,500. Ad-  
dress Box E 170, c/o Motor Age.

**FOR SALE—COMPLETE MANUFACTUR-**  
ing equipment of reliners. Best liner on  
the market. Business stands full investiga-  
tion. Can be bought cheap, all or half in-  
terest. Address Box E 220, care Motor Age.

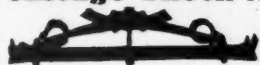
**FOR SALE—GARAGE AND OXY-ACETY-**  
lene plant in Robinson, Ill., an oil town of  
6,000. Doing good business. Price, \$4,000.  
Will take part cash. Note for balance. C.  
W. Warren, Willow Hill, Ill.

**FOR SALE—MODERN GARAGE, WELL**  
equipped, on good paying basis, best loca-  
tion in county seat town in Wisconsin, 9,000  
population; cheap rent, fireproof. Reasons  
for selling, requires \$1,000. Will sell half in-  
terest to good mechanic. Address Box E 223,  
care Motor Age.

**SALESMAN AND BROKER—CAN PUT**  
you in touch with business men who want  
to go in automobile business. What com-  
mission will you pay me on each customer  
I send you? I know a salesman also who  
would buy interest in small factory making  
low-priced automobiles and trucks. Ad-  
dress Dan I. Murray, 3 Malden Lane, New  
York.

**WANTED—TO INTEREST CAPITAL IN**  
new rotary valve motor, simple; piston and  
rod only reciprocating parts; patents granted  
and pending. Address "Rotary Valve," 510  
W. 4th, Sedalia, Mo.

## Chicago Shock Absorbers for Ford Cars



Made of special steel. Simple and  
easy to apply. No holes to drill,  
no parts to remove but the shackles.  
Anyone can apply in 30 minutes. Made for either Touring  
Car or Runabout. When ordering state which. Special  
price to dealers. List price, complete set.....\$8.00

**CHICAGO AUTOMOBILE SUPPLY HOUSE**  
1355 S. Michigan Avenue, Chicago, Illinois

## Hoyt Electrical Instrument Works

Makers of

**HOYT AMMETERS  
AND VOLTMETERS**

Penacook

New Hampshire



## SPROCKETS

CHAINS AND DIFFERENTIAL  
IN STOCK OR ORDER

SEND FOR NEW CATALOG

**Cullman Wheel Co.,** 1341 Altgeld St.  
Chicago



Established Agents  
Solicited

## Braender Tires & Tubes

### SERVICE and SATISFACTION

The Only set of Tires to complete the en-  
tire 500-mile race at Indianapolis, May  
30, 1913. Consider that 88 Tires of other  
makes were changed in this Race.

Our "Victory Folder" explains other  
races.

### Braender Rubber & Tire Co.

Main Office & Factory Rutherford, N. J.  
New York, 250 W. 54th St. Chicago, The Alfredal  
Co. Boston, Dayton Tire Co. Pittsburgh, Keystone  
Motor Supply Co. Indianapolis, Brant Bros. Co-  
lumbus, O., Franklin Rubber Co. Troy, N. Y., G.  
H. Snyder. Newark, N. J., Ketcham & Lawrie.

## SE-MENT-OL

will dissolve in the water and stop that  
leak in the radiator or water jacket

ASK YOUR DEALER OR WRITE DIRECT

MANUFACTURED ONLY BY

**The Northwestern Chemical Co., Marietta, Ohio**

## "ELEKTRA Brake Lining saved us that time"



In emergencies you've got to "call for help" on your brake linings. Upon the responsiveness of your brakes depends the safety of your car and its passengers. A good brake lining is simply good insurance. Consider it as such by getting the best obtainable—

### ELEKTRA ASBESTOS FRICTION BRAKE LINING

Made of selected asbestos, chemically combined (by a patented process) with an indestructible metal, and offering a very high coefficient of friction. That is why it will not burn, char, or slip; why oil, water or vapor have no effect upon it.

In point of wear and service, it has no superior.  
Write for sample and complete information.

**THE F. L. HORTON MFG. COMPANY**  
Whittier Street, Boston, Mass.

Your customers want the  
quality that

## Grinnell Gloves

offer—and there's a *real* and  
*continuous* profit for you in  
these famous gloves.

They are made of finest  
Reindeer and Velvet  
Coltskin—washable in  
soap and water or gasoline.



**Three exclusive features** Style 4827 \$3.00  
**found only in GRINNELL GLOVES**

"Rist-Fit," "Ventilated Back," "Grip-tite"—each of  
these is a distinct selling advantage in bringing your profits home.

### Well advertised—half sold

Grinnell Gloves have been well advertised for years—so that your  
preliminary work in getting your customers acquainted with  
Grinnell Gloves has already been done for you.

Write us today for full particulars of Grinnell Gloves

**Morrison-Ricker Manufacturing Company**  
64 Broad Street, Grinnell, Iowa

# Index to the

Allen Auto Specialty Co.....	87
Atwater Kent Mfg. Works.....	76
Auburn Automobile Co.....	72
Auto Parts Co.....	73

Best Light Co.....	64
Bosch Magneto Co.....	77
Boston Starter.....	72
Bowen Mfg. Co.....	69
Braender Rubber and Tire Co.....	85
Bricton Mfg. Co.....	75
Bridgeport Brass Co.....	75
Briggs-Detroit Co.....	76
Broderick & Bascom Rope Co.....	87
Brown Co.....	77

Cadillac Motor Car Co.....	52
Cartercar Co.....	75
Central Brass and Fixture Co.....	69
Chicago Automobile Supply House.....	85
Classified.....	85
Clearing House.....	79 to 84
Connecticut Telephone and Electric Co.....	72
Continental Motor Mfg. Co.....	54
Corcoran Lamp Co.....	77
Covert Motor Vehicle Co.....	57
Cullman Wheel Co.....	85
Cutler-Hammer Mfg. Co.....	Cover

Dayton Rubber Mfg. Co.....	74
Denby Motor Truck Co.....	62
Dodge Bros.....	Back Cover
Dunlop Wire Wheel Corp.....	4
Dyneto Electric Co.....	77

Eisemann Magneto Co.....	78
Electric Auto-Lite Co.....	75
Empire Automobile Co.....	65

Fedders Mfg. Co.....	78
Firestone Tire and Rubber Co.....	73
Ford Motor Co.....	70
Franklin, H. H., Manufacturing Co.....	45
Fulton Co.....	78

Gabriel Horn Mfg. Co.....	67
Gardner Engine Starter Co.....	53
Garford Mfg. Co.....	72
General Motors Truck Co.....	60
Golden, Belknap and Swartz Co.....	74
Golde-Patent Mfg. Co.....	78
Gramm-Bernstein Co.....	74
Greenslade Oil Co.....	84

Hazard, H. T.....	75
Heinze Electric Co.....	72
Herz and Co.....	69
Hess-Bright Manufacturing Co.....	88
Holley Bros. Co.....	78
Horton, F. L., Manufacturing Co.....	86
Houk, Geo. W., Co.....	76
Hoyt Electrical Instrument Works.....	85
Hyatt Roller Bearing Co.....	76

Inter-State Motor Co.....	77
---------------------------	----



# Advertisements

K. W. Ignition Co. ....	64
Kamlee Co. ....	72
Kemco Electric Mfg. Co. ....	71
Kimball Tire Case Co. ....	74
Kissel Motor Car Co. ....	77
Koehler, H. J., S. G., Co. ....	71
Kokomo Electric Co. ....	73
Lexington-Howard Co. ....	76
Master Carburetor Corp. ....	72
Maxwell Motor Co. ....	56
Metz Co. ....	73
Moline Automobile Co. ....	78
Monarch Motor Car Co. ....	61
Morrison-Ricker Mfg. Co. ....	86
New Departure Mfg. Co. ....	68
New York and New Jersey Lubricant Co. ....	74
Nordyke and Marmon Co. ....	77
Northwestern Chemical Co. ....	85
Olds Motor Works. ....	55
Paige-Detroit Motor Car Co. ....	72
Parish and Bingham Co. ....	84
Pathfinder Co. .... Front Cover	
Pennsylvania Rubber Co. ....	70
Perkins-Campbell Co. ....	66
Premier Motor Mfg. Co. ....	78
Prest-O-Lite Co. ....	76
Pullman Motor Car Co. ....	67
Rajah Auto Supply Co. ....	73
Rayfield Carburetor ....	63
Regal Motor Car Co. ....	48
Republic Rubber Co. ....	76
Robbins, Irvin, Co. ....	70
Royal Equipment Co. ....	77
Rutenber Motor Co. ....	75
Salisbury Wheel & Mfg. Co. ....	75
Schrader's, A., Son, Inc. ....	70
Scripps-Booth Co. ....	50-51
Searchlight Co. ....	73
Shaler, C. A., Co. ....	70
Smith, A. O., Co. ....	73
Sparks-Withington Co. ....	1
Sphinx Motor Car Co. ....	76
Spicer Mfg. Co. ....	74
Splittorf Electrical Co. ....	68
Standard Oil Co. ....	59
Star Ball Retainer Co. ....	74
Stewart-Warner Speedometer Corp. ....	49
Stromberg Motor Devices Co. ....	74
Studebaker ....	2
Sulzberger & Sons Co. ....	3
Thermoid Rubber Co. ....	68
Timken-Detroit Axle Co. ....	58
Timken Roller Bearing Co. ....	58
Triple Action Spring Co. ....	66
Twitchell Gauge Co. ....	71
Vulcan Mfg. Co. ....	78
Wadhams Oil Co. ....	69
Waltham Watch Co. .... Cover	
Western Electric Co. ....	71
Weston Electrical Instrument Co. ....	70
Wheeler and Schebler. ....	44
Wilkes & Grant Co. ....	73
Willard Storage Battery Co. ....	46-47
Winton Motor Car Co. ....	75

## The ALLEN TIRE CASE

merits the approval of owners and dealers because it renders a real service to motorists. It gives absolute protection to the spare shoe, easily buttons on and is made of highest



quality enamel duck in colors to suit. In all sizes and for all style demountable rims and wire wheels. Prices \$3.00 and up. At your dealers or write the manufacturer direct.

### THE ALLEN AUTO SPECIALTY CO.

Manufacturers, also, of the Allen Tyrometer—the handy, accurate tire pressure gauge  
926 Broadway, New York 1627 Michigan Ave., Chicago

## "Hook On This Autowline I'll Pull You Out"



### BASLINE AUTOWLINE

is the motorist's sure reliance in getting out of road difficulties. A car in a ditch, or a "dead" engine at the foot of a hill, doesn't trouble this little, pliant, 25-foot puller!

### Baseline Autowline

"The Little Steel Rope With the Big Pull"

has the flexibility, toughness and staying qualities of the world's most famous steel wire rope—"YELLOW STRAND POWERSTEEL." It will take a 4000-lb. car up a 20% rise without a quiver. It's always ready to take a tow or give one. Nest, compact, easy to carry and easy to use—motorists are finding Baseline Autowline the one accessory they can't afford to forget. Sold by all dealers everywhere. East of the Rocky Mountains, \$3.95. Ask about it today.

FREE An illustrated circular giving all needful Autowline information



### Broderick & Bascom Rope Co.

813 N. Second St. St. Louis, Mo.  
New York Office, 76 E. Warren St.  
Manufacturers of famous Yellow Strand Powersteel Wire Rope that helped build the new Municipal Building, New York.

HB *Hess-Bright* D.W.F.

THE HESS-BRIGHT BALL BEARING CO.  
PHILADELPHIA

HESS-BRIGHT  
HB  
D.W.F.  
BALL BEARINGS

When Writing to Advertisers, Please Mention Motor Age.



These cars use Waltham



for standard equipment



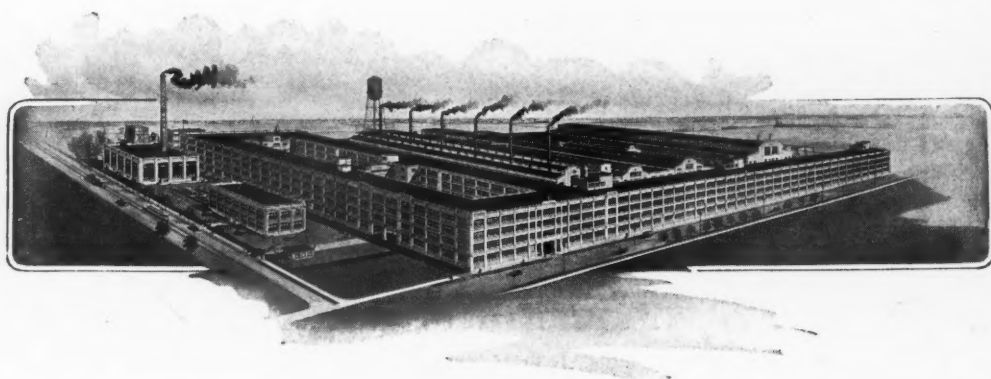
CRANE  
DETROIT  
FRANKLIN  
JEFFERY  
LOCOMOBILE  
LOZIER  
MARMON  
OLDSMOBILE  
PACKARD  
PIERCE-ARROW  
RAUCH & LANG  
ROLLS-ROYCE  
RUSSELL-KNIGHT  
SIMPLEX  
STEVENS-DURYEA  
WHITE  
WINTON

Has *your* car Waltham



for standard equipment?

WALTHAM WATCH COMPANY, WALTHAM, MASS.



# DODGE BROTHERS

## DETROIT



Inquiries for dealerships reached 10,369  
October 5th, an increase of 955 in ten days